

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—PROBABILITY: THE RELATIONS OF PROPOSAL TO SUPPOSAL.

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[Between the publication of his *Logic, Part III.* (The Logical Foundations of Science) in 1924 and his death in 1931, Johnson devoted a great part of his energy, limited by ill-health, to the exposition of his considered views on probability in a form suitable to be *Part IV.* of the *Logic*. Unfortunately he had left it too late: he was not able to concentrate sufficiently upon the whole subject to treat it as he wished; and only the first three chapters of the book were completed. These chapters, which date from about 1925, are being published in this and two succeeding numbers of *MIND*: Miss Naomi Bentwich (Mrs. Jonas Birnberg), who helped Johnson at so many stages of his work, has assisted me in preparing her typescript for publication.—R. B. BRAITHWAITE.]

A DISCUSSION of the theory of probability naturally falls into two quite distinct divisions: one division deals with the philosophical foundations of the theory; the other with the construction of formulæ for calculation. As to the philosophical foundations there are profound differences of view amongst philosophers; the treatment, therefore, in this department must be highly controversial. The development of formal probability, on the other hand, ought not to raise any disputable points. Differences in results are to be traced to mistakes, which should require only formal correction. We will begin by considering the more formal aspects of the subject, though this will not preclude reference to philosophical theory, where the need arises, to prevent confusion between the two aspects.

The formal and elementary treatment of probability intro-

duces only simple arithmetical notions. Probabilities are quantities, and hence subject to rules of addition and multiplication; on this point there is no serious difference of view. But there might appear to be some controversy as to the reference of the term 'probability' in the sense of a definable quantity. Familiarly we speak of the probability of an event; but, in my view, such an expression is not justifiable. From the outset I wish to maintain the logical position that probability attaches to propositions as such. In this connexion it will be found useful to distinguish three types of proposition, each of which presents its own kind of probability-problem; namely (1) The singular proposition, *e.g.*, that the next throw will be heads, or that this applicant for insurance will die within a year; (2) The class-fractional proposition, *e.g.*, that, of applicants to an insurance office, $\frac{3}{4}$ of consumptives will die within a year; or that $\frac{1}{2}$ of a large number of throws will be heads; (3) The universal proposition, *e.g.*, that all men die before the age of 150 years. These examples will help to remove a very common confusion between fundamentally distinct problems which have a superficial resemblance. Thus the probability that all men die before 150 is apt to be confused on the one hand with the probability that a given man will die before he is 150, and on the other with the probability that any man will die before 150. And again the proposition, say, that $\frac{3}{4}$ of consumptives will die in a year, is often confused with the estimate of probability, $\frac{3}{4}$, assigned to the proposition that a given consumptive will die within a year. In dealing with the probability of a class-fractional proposition, two fractions enter: for instance, we might have concluded that the probability that $\frac{3}{4}$ of consumptives will die within a year is $\frac{9}{16}$ ths.

Now it is of the first importance, in considering the theory of probability, to emphasise the logical doctrine that any treatment of the proposition involves reference both to the mental attitude of assertion, and to the object of assertion (which we have called the assertum). For in this theory we have to recognise not only the two assertive attitudes of acceptance or rejection of a given assertum, but also a third attitude, in which judgment as to its truth or falsity is suspended; and, in my view, probability can only be expounded by reference to such an attitude towards a given assertum. The attitude of suspense is a *mental* fact, the causes and conditions of which, as actually manifested, must be treated in psychology. The logical treatment of probability is related to the psychological treatment of suspense of judgment in the same way as the logical treatment of the proposition is

related to the psychological treatment of belief. Just as logic lays down some conditions for correct belief, so also it lays down conditions for correcting the attitude of suspense of judgment. In both cases we hold that logic is normative, in the sense that it imposes imperatives which have significance only in relation to presumed errors in the processes of thinking: thus, if there are criteria of truth, it is because belief sometimes errs. Similarly, if there are principles for the measurement of probability, it is because the attitude of suspense towards an assertum involves a mental measurable element, which is capable of correction. We therefore put forward the view, that probability is quantitative because there is a quantitative element in the attitude of suspense of judgment. We speak familiarly of feeling more or less sure of different propositions entertained in thought; in this sense certitude or assurance is a matter of *felt* degree. Assuming that, in accordance with the theory of probability, quantity of certitude can be assigned, we hold such quantity to be corrective of any *felt* quantity. This view is perhaps more controversial than anything else in the theory of probability, and its discussion will be best postponed until after the development of less disputable aspects of the theory.

In earlier departments of logic we have noted that many ideas, such as that of the possible, involve reference to two connected propositions. In like manner, the conception of probability applies not to a proposition taken in and for itself, but to a relation of dependence between propositions. In treating of the connexion between implication and inference, we distinguished two aspects of dependence, namely the constitutive and the epistemic; and between the principles of ordinary inference and those of probability there is an analogy in this respect. To illustrate the relation between these two aspects of dependence in ordinary logic, let us take the two propositions "Some M is P" and "Some P is M". The relation expressed by saying that both propositions are particular and affirmative, and that one is the converse of the other, is a constructional * relation. On the other hand, the relation expressed by saying that the latter is inferable from the former, is an inferential * relation. Again, in the case of the propositions "All M's are P" and "All P's are M", where the two propositions are universal affirmatives, and one is obtained from the other by simple conversion, the constructional relation is different from the preceding. The in-

* Johnson has changed the words "constitutive" and "epistemic" of the original typescript, here and in similar contexts, into the words "constructional" and "inferential".—R.B.B.

ferential relation dependent upon this latter is negative : namely, that the one proposition cannot be inferred from the other. In conceiving the constructional relation between any two given propositions, we have to note (just as in inference proper) both the form of each proposition taken by itself, and the process by which one proposition is constructed from the other. For example, if our supposal is that "Among 30 examined M's, 13, and only 13, are P", and our proposal that "The next examined M will be P", the *form* of the propositions indicates the constructional relation between them. In this case it involves the universals 'only', '30', '13', '1' and 'next', as well as the mode according to which the proposal is constructed by modification of the supposal. Now upon this constructional relation, so conceived, is based an inferential relation ; namely, the measure of probability that should be assigned to the proposal as based upon assurance with respect to the truth of the supposal. Thus, in the theory of probability, the constructional relation between supposal and proposal yields in general a measure of probability for the latter less than certainty ; whereas, in the ordinary theory of inference, this probability reaches its limiting value, namely, certitude. In both cases what I have called the inferential relation of a supposal to a proposal indicates the rational degree of assurance with respect to the proposal which is conferred by complete assurance of the supposal.

We have introduced above the technical terminology for the two asserta which stand in a probability-relation. When one assertum formally implies another assertum, we have spoken of the former as *implicans* and the latter as *implicate*. And when we consider the probability of one assertum in its dependence upon another assertum, we shall refer to the former as the "proposal" and the latter as the "supposal". Thus the relation of the supposal to the proposal is analogous to that of the *implicans* to the *implicate*. To explain this choice of terms, we may point out that, in probability, some proposition is first put forward whose probability is to be considered. This proposition, in itself, has no intrinsic probability ; it acquires probability only by reference to a certain assignable relevant and limited piece of knowledge. The probability to be assigned to a given proposal is determined by reference to a datum which is supposed to be known, and which is therefore conveniently called the *supposal*.¹ It is to be noted that the relation of the *implicans* to the

¹ Note that the word "supposal" is virtually the Latin form of the Greek word "hypothesis" which logicians have employed to denote the supposal or *implicans*.

implicate represents the extreme case of the relation of supposal to proposal: the implicans imposes upon the implicate referential certitude; whereas in general the supposal imposes upon the proposal referential incertitude having some assignable measure. Certitude is the limiting measure which can be assigned to any degree of incertitude or probability. But it would be mistaken to suppose that all certitude is of this kind. We are inevitably led to the view that there are different and incomparable types of certitude; and in particular that the highest certitude obtained by experience is of a different order from that obtained by intuition. Considered epistemically, the supposal (like the implicans) stands for what is taken to be known with valid certitude independently of the proposal (or implicate); but the inferential relation of the supposal to the proposal in the theory of probability exhibits much greater complication than the relation of the implicans to the implicate in formal inference.

Here we may point out a connexion between the familiar formal logic which is learnt before the theories of probability, and these latter, as regards the assertion or denial of the relation of implication. There is firstly the distinction between formal and material implication. Thus a thing being red and hard formally implies its being hard, or its being not-blue; while the proposition that rain would imply wetness of the ground illustrates material as distinct from formal implication.

Now any statement of implication, whether formal or material, may be translated into the language of probability by taking the implicans as supposal and the implicate as proposal; and the probability of such a proposal is the maximum degree called certitude or unity. What holds of certitude or unity holds, of course, *mutatis mutandis*, of contracertitude or zero. Thus, if two propositions are co-disjunct, either formally or materially, then taking one or the other of these propositions, not known to be false, as our supposal, the probability of the other proposition upon this supposal equals zero. Briefly, then, the two cases we have considered are those where the probability assigned has either the value nought or one, according as a proposal is co-disjunct with or implied by a given supposal.

We pass then from these rules of disjunction and implication—material or formal—which yield probabilities respectively nought or one, to the opposite relation, namely where, say, a proposition p in relation to s is not implied or is not disjunct. Thus if s does not imply p , this is translated into the statement "The probability of p upon s is less than 1". Again, if p is not co-disjunct with s , the probability of p upon s is greater than

zero. Thus the two fundamental inequalities, less than 1 and greater than 0, are the translations into the language of probability of the negative relations not-implying and not-co-disjunct.

Now, if the supposal were purely formal—in which case we could always employ it categorically and not merely hypothetically—then there would be no proposal whose probability, based upon this formal supposal, could be determinately evaluated. In other words, with a purely formal supposal the probability of every non-contradictory proposal would be merely greater than nought; no further assignment of the measure of the probability is available. A non-self-contradictory proposition is, in fact, said to be formally possible; this being an epistemic conception, expressed by evaluating its probability merely as greater than nought. We must, however, pursue the significance of the epistemically possible, which perhaps, for the purposes of probability, should always be translated into this inequality. The more general definition of an epistemically possible proposition is that it is one whose falsity we have not been able to establish; or, otherwise, the contradictory of which has not been certified, either formally or experientially. For example, "It may be that it will rain to-morrow" or "that it is raining in Jerusalem" are epistemically possible, merely in the sense that we do not know them to be false. There is no reference here to nomic considerations; that is, we do not assert that we know that there are not forces in operation which would prevent the rain; the probability evaluation is a mere expression of our ignorance.

To take another type of illustration: the knowledge k which justifies the assertion that every S is P , when translated into the language of probability, gives the equation SP upon $k = 0$. Just as this expresses our knowledge that there are no things that are SP , so we next consider different degrees of ignorance with respect to such a universal proposition. The contradictory of this universal is of course expressed either as "Not-all S 's are P " or, for our immediate purposes, "There are some SP 's". Now this latter statement, when expressed as a class-fractional proposition, is simply " SP is greater than 0". When we pass to probability we use the inequality

$$SP \text{ upon } k > 0. \quad Cf. \left\{ \begin{array}{l} SP > 0 \\ SP/k > 0 \end{array} \right\}.$$

Now this latter is somewhat ambiguous. We must therefore replace the universal proposition by the proposal that refers to a certain presented case, namely the proposition "This S is P ".

Here the adjectives S and P take the place of supposal and proposal respectively. The probability which we shall evaluate may be written \bar{P}/Sk , and its value, if we knew that all S is P, would be zero; and if we do not know that all S is P, its value is greater than zero. First, then, while an equality relation expresses knowledge, an inequality relation always expresses ignorance. But there may be, as I hinted, different degrees of ignorance. Thus, if science has been unable to ascertain with respect to any S whether it is P or not, *e.g.*, with regard to any fixed star whether it is inhabited or not, then the proposal that Sirius is inhabited will have a probability greater than zero; which merely expresses an epistemic possibility grounded upon the minimum of relevant knowledge, or the maximum of ignorance. If, on the other hand, we took as our proposal that Mars was inhabited—Mars being one of the solar planets, and we happen to know with respect to one solar planet that it is inhabited—this proposition has a probability greater than zero. It resembles the case of Sirius; but with this difference, that as regards the one, we have no relevant knowledge favouring the possibility in question; and with respect to the other, we have such relevant knowledge.

We have now reached the three distinguishable cases in which the theory would assign a probability value (x) greater than zero. First, where the proposition in question is merely not formally self-contradictory. Secondly, the case where we have no empirical evidence favouring its truth. Thirdly, where we have some one item at least of empirical evidence favouring its truth. All these three cases are in the theory summed up in the statement $x > 0$; and as I have now pointed out, the ignorance thus expressed as regards the truth of the proposition has at least these three specifiable degrees. One conclusion from this rather unexpected result is that we may say that though, in these three cases, only one measure of probability can be assigned, yet the three modes of estimating the probability as merely greater than zero have different degrees of worth. Where our evaluation depends upon merely formal considerations, this minimum knowledge confers very little worth; where no empirical generalisation has been established, the worth is a little higher; and where, thirdly, we have positive evidence from the examination of one or more cases, then the probability has still higher worth.

In concluding so far, I have to adopt the view that probability evaluations of any importance must be based upon empirical, and not merely formal, knowledge. And, furthermore, that an

accession or increase of empirical knowledge may not measurably increase or decrease the probability of a given proposal, but may merely confer greater worth upon a merely indeterminate estimate of probability such as is typically expressed by the inequation "greater than zero".

Our preliminary account of probability may be summarised thus. Probability is a character, variable in quantity or degree, which may be predicated of a proposition considered in its relation to some other proposition. The proposition to which the probability is assigned is called the proposal, and the proposition to which the probability of the proposal refers is called the supposal. The degree of probability to be assigned to the proposal is determined by the constructional relation between the content of the proposal and the content of the supposal. A simple illustration may be given. Let the proposal be that "the next throw of a certain coin will give heads". Let the supposal be that "the next throw of the coin will give heads or tails". Then the relation of probability in which the proposal stands to the supposal is determined by the relation of the predication 'heads' to the predication 'heads or tails'. Or, to take another example, let the proposal be that "the next man we meet will be tall and red-haired", and the supposal that "the next man we meet will be tall". Then the relation of the predication 'tall and red-haired' to the predication 'tall' will determine the probability to be assigned to the proposal as depending on the supposal. These two cases illustrate the way in which the logical conjunctions 'or' and 'and' enter into the calculus of probability. Given the knowledge 'heads or tails' as certified, the predication 'heads' has some degree of probability *less* than certitude. And again, given the knowledge 'tall' as certified, the predication 'tall and red-haired' has some degree of probability *less* than certitude. On the other hand (inverting in each case the proposal and the supposal) when the predication 'heads' is given as certified, the predication 'heads or tails' would have the limiting degree of probability called certitude; or, when the predication 'tall and red-haired' is given as certified, the predication 'tall' would have the same limiting value, certitude. This leads to a further principle, which must be regarded as axiomatic in the theory of probability: the probability of 'heads or tails' on any supposal cannot be less than the probability of 'heads' on the same supposal. And again, the probability of 'tall and red-haired' on any supposal cannot be greater than the probability of 'tall' on the same supposal. These axioms may be stated in their general form with or without the employment

of symbols to illustrate propositions or predications in general. Thus, expressed with symbols:—

On any supposal, the probability of ' p or q ' cannot be less than the probability of ' p '.

And again

On any supposal, the probability of ' p and q ' cannot be greater than the probability of ' p '.

Without symbols:—

The probability of an alternative predication cannot be less than the probability of one of its alternants.

The probability of a conjunctive predication cannot be greater than the probability of one of its conjuncts.

These two axioms lie at the foundation of all theories of probability. In the first axiom, the negative form could be replaced by the alternative 'greater than or equal to'; in the second axiom, by the alternative 'less than or equal to'. [It is, in fact, sometimes convenient in mathematical abbreviation to substitute 'greater' for 'not less', and 'less' for 'not greater', though this is, of course, strictly incorrect.]

In speaking of certitude as the limiting degree of probability, we assume that no probability can be greater than certitude. Hence probability can always be measured as a proper fraction of certitude, reaching the limit 'unity' when the probability reaches the limit 'certitude'. It is a mistake, in my judgment, to represent probability by a mere fraction, inasmuch as it is properly to be represented not by a numerical fraction, but by a fraction of certitude. The mathematician might treat this distinction as without import, if certitude were taken as a constant quantity; though even in this case I should hold the distinction to be theoretically necessary. Moreover, in the more subtle discussions of the theory of probability, it might be found that certitude itself had different degrees, or perhaps that different certitudes were quantitatively incommensurable.

The view that I have put forward is often described as the relative theory of probability, because probability is assigned to a proposition not in and for itself, but in reference to another proposition. I prefer to call it the referential view. But whichever term is used, it is important to guard against any misunderstanding with regard to the nature of the relation or reference. The probability of a proposition appears on the referential view to be conditional or hypothetical. The typical form for expressing the probability relation is: "Given only s , the

probability of p would be $\frac{3}{4}$ " (say). Now, although this proposition is undoubtedly conditional, yet its hypothetical character disappears when applied in given circumstances. It applies to circumstances in which our relevant knowledge is *limited* to the knowledge of s , and in these circumstances the probability is predicated *categorically*. This does not mean that a degree of probability attaches to the proposition in itself, but that a rational value is assigned to the degree of incertitude with which the proposition is to be entertained by any person whose knowledge may be limited to s .

A probability assertion, therefore, is ultimately, and for purposes of practical application, both referential and categorical. It is not always easy to keep these two characteristics clearly in mind at the same time. For, when reference to a certain proposal is explicitly introduced, the assertion of probability appears to be hypothetical, while when this reference is omitted, the assertion, which is thus rendered explicitly categorical, appears to be non-referential. Let us take the latter case first. We ask: What can be meant by assigning to the probability of p the value $\frac{3}{4}$, without reference to any supposed knowledge upon which the probability depends? Answers to this question would be very different according to the kind of supposal to which reference was implicitly made. One would be that where there is no mention of the supposal, the understood reference is to the minimal knowledge. Another, that the reference intended is to the maximal knowledge. And there would be various other answers having reference to knowledge intermediate between the minimal and the maximal. In minimal knowledge I should include only knowledge of merely arithmetical and formal truisms, which would give to the probability its absolutely prior value. The value thus assigned would be necessarily extremely indeterminate. In fact, probabilities on a purely formal supposal could only be compared as greater, equal or less, with one another, according to the formal relations amongst the proposals. For example, if a and b are two proposals, not formally false, and if their conjunction is formally false, then we can assert that

$$\text{Prob. } (a \text{ or } b) = \text{Prob. } a + \text{Prob. } b,$$

$$\text{and that } \text{Prob. } (a \text{ or } b) > \text{Prob. } a$$

—these probabilities being referred to a purely formal supposal. Passing next to the maximal knowledge: we have remarked that every item of knowledge which has been attained, must be included in the supposal upon which the assigned probability is made to depend; but by maximal knowledge we ought to mean

the whole of *attainable* knowledge. This may include more than *attained* knowledge. Maximal knowledge does not of course mean omniscience, for to omniscience all probabilities would become certainties. Attainable knowledge must be restricted therefore within the limits of human observation and communication. In particular, historical testimony and scientific generalisation are open to all those who will inform themselves. What then we have called maximal knowledge will include references by any individual to any attainable historical or scientific information; this information being restricted, of course, to what is relevant.

There is a school of logicians who hold that only one species of information is relevant to the estimation of probabilities; namely, the knowledge which can be formulated in terms of frequency. The view here maintained, however, is that although frequency knowledge is to be included as of the highest importance when attainable, it is by no means alone adequate.

Any implicit supposal which is intermediate between the minimum and maximum might be called *conventional*. Thus, in different classes of probability-problems, certain conditions are understood to be fulfilled, without explicit statement; and the evaluation of the probability depends upon this assumption. Thus in card games the cards are supposed to have been properly shuffled; in tossing coins, the coins are supposed to be physically and geometrically symmetrical; in a selection of men offering themselves to an insurance office, it is assumed that candidates are of different occupations, ages and states of health. If such suppositions as these are not to be presumed, it is necessary explicitly to introduce a contrary supposition; which only serves to emphasise their usual conventional significance. Thus, when no explicit supposal is mentioned, any probability assertion must be understood to refer implicitly to a minimal, to a maximal, or to a conventional supposal. Further, we have noted that the referential probability is to be applied categorically; the value of the probability being regarded as the rational degree of incertitude with which the proposal in question is to be entertained by any person whose knowledge may be limited to a knowledge of the supposal. Now, although the final significance of a probability assertion is categorical, yet the *calculation* of a probability value in certain fundamental cases will be found to depend upon hypothetically asserted probabilities. To explain this point, it will be convenient to anticipate the further treatment of probability, in which precise axioms are laid down, by introducing the axiom of multiplication, which here may be rendered as follows:—

The probability of the conjunction pq upon any supposal k is the product of the probability of p on supposal k and the probability of q on the joint supposal pk .

In this formula, different supposals are involved. First, the simple supposal k , and next the compound supposal pk . Now this formal relation may be applied either to find the probability of q on supposal pk , or to find the probability of pq on supposal k . In the former case, the supposal pk represents the actual knowledge that has been acquired, and is thus used categorically, while the supposal k represents knowledge less determinate than that which has been acquired, and is therefore used hypothetically. In the latter case the supposal k represents the knowledge that has been acquired, and k therefore is used categorically, while the supposal pk represents more determinate knowledge than has actually been acquired, and is therefore used hypothetically. In the former case, we calculate the probability on the categorical supposal by an operation of *division*, using probabilities calculated on a hypothetical supposal less determinate than the categorical supposal. In the latter case, our calculation involves the operation of *multiplication*, and the use of a hypothetical supposal more determinate than the categorical supposal.

We will express these two calculations in the form of equations, putting to the left the unknown value as based upon a categorical supposal, and to the right the values based on the hypothetical supposal from which the required value is to be calculated, thus :—

$$(1) \ q \text{ on } pk = (pq \text{ on } k) \div (p \text{ on } k)$$

$$(2) \ pq \text{ on } k = (p \text{ on } k) \times (q \text{ on } pk).$$

Taking an elementary example to illustrate the second case, we will suppose that balls are drawn from a bag, successively, and each put back before the next is drawn. We know that the bag contains three red and five white balls. The problem is : What is the probability of our first draw being red and our second white ? Here the categorical supposal k stands for the knowledge that the bag contains three red and five white balls ; the proposition p stands for the conjecture that the first ball drawn will be red ; the proposition q stands for the conjecture that the second ball drawn will be white. The problem then is to find the probability of pq on k . We have, in accordance with formula (2), to use the probability of p on k , which is obviously $\frac{3}{8}$. We next have to use the probability of q on pk . Here the supposal is hypothetical as regards p , i.e., we suppose (in the literal sense

of the word) that we have first drawn a red ball. We then have to calculate, on this supposal, the probability of drawing a white ball. If, then, the first ball drawn is put back without shaking up the bag, the probability of again drawing the same ball is almost a certainty. And hence, the probability required that we shall next draw a white ball is correspondingly small. Let us call it $\frac{1}{16}$. The final answer to our problem is therefore $\frac{3}{8}$ of $\frac{1}{16}$. If the problem be now varied by supposing the ball drawn not to be replaced, the hypothetical supposal that we had first drawn a red ball would reduce the bag to two red and five white balls, upon which the probability of drawing a white would be $\frac{5}{7}$ instead of $\frac{5}{8}$. Hence the final probability required is $\frac{3}{8}$ of $\frac{5}{7}$. This very elementary problem illustrates how in processes of calculation which are to be applied finally by reference to actually known data, we may have to employ probabilities based not upon data representing actual knowledge, but upon a special hypothesis, which may or may not be actualised.

The converse case can be best illustrated in an elementary way by taking a formula slightly more complicated than (1) or (2), but directly derivable from them, namely:—

$$(3) \quad \frac{p \text{ on } qk}{\bar{p} \text{ on } qk} = \frac{p \text{ on } k \times q \text{ on } pk}{\bar{p} \text{ on } k \times q \text{ on } \bar{p}k}.$$

The supposals here to the left are to be asserted categorically; and the ratio of the probabilities upon these supposals is to be calculated from the formula to the right, which involves supposals asserted hypothetically. As an easy illustration, let k stand for 'a hand of cards'. Let q stand for 'a certain observed peculiarity in this hand'. And let p stand for the conjecture that 'some person has manipulated the cards'. Thus, the observed facts qk are the special peculiarity of the hand; and the probability in question is of the proposal p that some person has manipulated the hand. The numerator to the right contains first the factor expressing the probability of a person having interfered, on the supposal that nothing is known as to the nature of the hand. For instance, we should consider what possible opportunities a person may have had of arranging the cards unobserved, and what sort of person could have been in the room who would have been likely for any purpose to have tampered with the cards. The supposal here is therefore hypothetical, inasmuch as it is less determinate than are the known facts of the case. And the probability based on this supposal is independent of the peculiarity observed. The next factor in the numerator involves the supposal pk , that some person has tampered with the hand.

This again is taken hypothetically, since it is not known that such is the case. The probability expressed by this second factor is based upon the supposal that somebody has interfered, and is the probability that he would have produced the special peculiarity of the hand that has been noted. Now, this depends essentially upon the nature of the special peculiarity. Any such arrangement as that the hearts are all in one hand, or that the honours are all in one hand, etc., would be a peculiarity which a person might be likely to have produced by design. The same remarks apply to the denominators, where the conjecture not- p , that no person has interfered, replaces the conjecture p , that some person has interfered. The formula may be put shortly in words as follows: "The queer hand having been observed, the ratio of the probability that some person has interfered to the probability that no person has interfered, is equal to the ratio of the prior probability that someone has interfered multiplied by the probability that, if so, he would have produced the special peculiarity observed, to the prior probability that no one has interfered, multiplied by the probability that the same peculiarity would have been observed if no one had interfered."

We thus take on the right-hand-side three hypothetical supposals to which the probabilities are referred, in order to calculate the required ratio of probabilities based upon the categorical supposal representing the full knowledge of the facts observed. We have then a second elementary illustration of the way in which probabilities based on assertoric supposals are calculated in terms of probabilities based on hypothetical supposals.

This distinction, between supposals used categorically and supposals used hypothetically, is not, I believe, generally pointed out in the explanation of probability calculations. From a logical point of view, it appears to me of the first importance. The distinction is required in giving *epistemic significance* to the probability formula, although it is not at all required in determining the *formal correctness* of the formula. For, as we explained at the beginning, this formal correctness depends only upon the contents of the several proposals and supposals in their relation to one another, regarded as mere *asserta* without reference to their assertibility as dependent upon the opportunities of acquiring knowledge. The merely formal account, however, requires us to recognise that the probability in each case is based upon knowledge limited to the assertion contained in the supposal.

We pass to the consideration of a problem concerning the different kinds of constituents which enter into the supposal.

First we will consider the type of constituent which is the representation, in a relatively *indeterminate* form, of what is represented in the proposal in a relatively *determinate* form. Thus, if the proposal were the conjecture that the die will turn up '3 or 6', then the corresponding constituent of the supposal is the known fact that the die will turn up '1 or 2 or 3 or 4 or 5 or 6'. Again, with the same supposal, the proposal might have been that the die will turn up an odd number, or that it will turn up a number greater than 2. These all illustrate a supposal representing indeterminately what the proposal represents more determinately. Again, if our proposal be that the measure of an unknown quantity should be (say) 9, or that it should lie between 4 and 11, the corresponding supposal expresses the knowledge that the quantity has some or other measure, and, in special cases, that the quantity is integral, or positive, or that it lies between some assigned limits. Again, if the proposal be that a certain thing that we are going to encounter will be red, the corresponding supposal here is that the thing will manifest some colour or other; or perhaps that it will have a colour lying within a certain range, defined either by discrete alternatives, or by a continuous stretch of difference.

Every question of probability involves in its statement this relation of relative determinateness of the proposal, as compared with the relative indeterminateness of the supposal. Using the conception of the determinable, we shall modify our previous symbolism by taking the small letter to represent a relatively determinate factor, and the corresponding capital letter to represent the relatively indeterminate factor. This usage will include our previous custom of using the small letter for the *absolutely* determinate, and the capital letter for the *absolute* determinable. We can now express in a universal form one respect in which the content of the supposal is related to that of the proposal, taking as the general case a conjunction of factors to constitute the related asserta. Thus, we shall always deal with a "proposal *pqr* . . . based upon the supposal *PQR* . . .". This constituent of the supposal may be called the constituent formally related to the proposal.

We have next to consider any other assertoric knowledge included in the supposal, upon which the probability of the proposal further depends, apart from the formally related constituent. This assertoric constituent may be of two different kinds. The first is expressed in universal propositions which are presumed to have been validly certified. The most obvious case in which the knowledge of universal propositions is relevant, is where they

definitely restrict the range of possible variation of the variables p, q, r . In fact, this knowledge assigns the relative determinateness of P, Q, R as previously considered.

The second kind of assertoric supposal to be considered is expressed in frequency propositions. Thus, if we are considering the conjecture that "this is p ", then the knowledge that "this is a ", and that " $\frac{m}{n}$ ths of the things that are a are p " is a relevant element of the supposal.

We have now given an illustration of each of three different kinds of assertoric constituents of the knowledge upon which the evaluation of a probability may depend. It would be, in my view, proper to restrict what is called the supposal to *assertoric* data. But another totally different class of datum is required for the evaluation of any probability. For, from merely *assertoric* data of knowledge, no probability assertion can ever be extracted. In order to assert a probability, we must suppose a *relation* between probabilities. For example, before we can assert a probability for the conjecture 'heads' upon the supposal 'heads or tails', we must presume a ratio between the probability of 'heads' and the probability of 'tails'. In default of any further relevant knowledge, we ordinarily presume that this ratio is a ratio of equality. We say, in familiar language, that heads are as likely as tails. It is only on this presumption that the arithmetician can measure the probability of 'heads' as being half of certitude. The grounds for this equality of the two alternative probabilities belong to the philosophical foundations of the theory of probability. The presumption in question, or some analogous presumption, has always to be given to the mathematician before he can take the smallest step in calculating probabilities.

In the foregoing exposition it has been shown that for the practical application of the formulæ of probability certain assumptions are required which cannot be mathematically demonstrated, and these are of the nature of postulates—in the sense of the term explained in *Part III.* of my *Logic*. The theory of probability requires special postulates, the justification of which, at the bar of Reason, constitutes the most controversial problem in the philosophy of the subject. Thus these controversial postulates must be distinguished from the axioms which govern arithmetical processes, since these latter, being intuitively certain, are incontrovertible.

II.—KANT'S FIRST MORAL PRINCIPLE.

By G. C. FIELD.

Act only on that maxim whereby thou canst at the same time will that it should become a universal law.

KANT claims, more than once, that his moral theory is based firmly on our common notions of morality. And there can be little doubt that, in his idea of morality as a system of universal rules, his claim is justified. Of course, merely in formulating what is ordinarily assumed without being stated, he is going some way beyond these common notions. But it is clear, beyond question, that the very idea of right and wrong commonly held includes some notion of generality or universality.

The evidence for this is manifold. We can see how quickly and naturally we react with approval to popular moral dicta of the type of "What is sauce for the goose is sauce for the gander", or, less colloquially, "What is right for one person must be right for another". Again, if asked why a particular action is right or wrong, one of our most natural replies is to state its general nature. "Why is that wrong?" "Because it's telling a lie". We are always inclined to think of right or wrong as expressible in a series of general rules about various classes of action. In other words, we naturally tend to think of the moral law as analogous to the civil law, which in its nature consists of general rules and does not admit of exceptions. Indeed the development of codes of law is an expression of this tendency. It would be erroneous to speak as if our tendency to think of the moral law as a system of rules arose from previous acquaintance with the civil law and an application of our knowledge of that to the moral law. On the contrary, the development of a civil code at all is an expression of this notion of what a moral law ought to be. In the earlier stages, the moral law and the civil law are distinguished only imperfectly or not at all.

We could find a good instance of the working of this tendency in Hobbes' view of the social contract. It is a familiar and unanswerable criticism against Hobbes that, while he pretends to

base his theory on our natural instinctive tendencies, in fact he argues throughout on the unrealised assumption that we have no right to act in this or that way (*e.g.* in resisting the sovereign) whatever our natural tendencies incline us to, and however exceptional the circumstances. And his ground for this is that it would destroy the efficacy of the law altogether if we once began to admit exceptions. Arguments on these general lines must be familiar to everyone in daily discussion. We may, perhaps, group them together as the where-are-you-going-to-draw-the-line class of arguments. Their frequency bears witness to our strong feeling of the imperative need for absolute and universal moral rules, if morality is to be anything at all.

Such a general assumption must be taken account of with great care by the moral philosopher. He is not bound to accept it without criticism at its face value. But he must at least be able to show that he has understood it and explained it. He has to disentangle the different threads of thought that are combined in these and similar arguments, and decide how much of them must be retained in a systematic account.

Kant, of course, regarded this notion of the universality of the moral law as so essential that it became for him not only *a* feature of morality but *the* feature, from which everything else that we could say about it followed. It would be going too far to say that he made this capacity for being universalised his definition of the rightness of an action. At any rate he does not regard it as a complete formulation of the moral characteristic: it requires to be developed further by the second and third principles. But he does regard it as an essential feature of this characteristic of rightness, and of this alone. There can be little doubt that he thought they mutually involved each other, so that we can say not only "All right actions are capable of being universalised," but also "All actions capable of being universalised are right". Doubts have been expressed on this point, and it has been suggested that it was merely the first proposition that he was definitely committed to. This would make it a negative test of right action, only: and it is true that in some of his formulations of the principle Kant seems to emphasise this side of it more particularly (*e.g.*¹ p. 18, "We are never to act otherwise than, etc."). But the whole argument and the applications of the principle make it clear that in fact he thought that both propositions were true, and that the principle was both a positive and a negative test of right action. Otherwise it could hardly have the practical efficacy that he claims for it.

¹ References throughout to Abbott's translation.

For there can be little doubt that he regarded it not only as a theoretical statement of a general principle, but also as a practical criterion which could be applied without great difficulty to decide what was right or wrong in any particular case. There are too many phrases like this (p. 20), "Here it would be easy to show how, with this compass in hand, men are well able to distinguish, in every case that occurs, what is good, what bad," for there to be any real doubt about the matter. And it is this point in his theory which has been the object of most general attack. The notion of the test of universalisation as a practical criterion has been unanimously rejected by the critics, and doubtless with good reason. The arguments against it are probably familiar to every student in the elementary stages of moral philosophy. We have all been introduced very early to the figure of the innocent man pursued by murderers whose life can be saved by a timely lie. There is no need to work over this well-trodden ground again.

But it is important to note that the usual line of refutation really rests on considerations not so much about the nature of rightness or wrongness as about the nature of an action. Kant's view, of course, implies that actions can be classified into species by considering only some of their characteristics and neglecting others. And it implies further that, when so classified, the predicates right or wrong can be attached to certain classes. He assumes, that is to say, that the characteristics in which the members of a class differ from one another can be ignored, not only for convenience of classification, but from the point of view of moral judgements. And he assumes, further, that it is possible to know before an actual case occurs what characteristics can be thus ignored.

It has often and quite rightly been pointed out that such classification of actions into groups, such as telling lies, committing murders and so on, is really only a rough practical measure. Which common facts we take as the basis of classification and which distinguishing facts we ignore depends on the particular purposes for which we require the classification. And for the purposes of moral judgements we cannot tell beforehand for all possible circumstances what characteristics will be irrelevant. When we reject Kant's view about the absolute, invariable wrongness of telling a lie even to save an innocent life, it is not, strictly speaking, because we believe that telling a lie is sometimes right and sometimes wrong, but because we do not believe that the action is rightly described simply as telling a lie and nothing more. It is really a different kind of action from the kind of telling lies that we rightly condemn.

Now all this line of criticism, perfectly sound as far as it goes, does little to throw doubt on the fundamental principles that Kant was trying to express. At most it warns us against Kant's exaggeration of the practical efficacy of his own principle, which he carried to the extent of making it an absolutely infallible guide in practice. But it does not affect its truth, nor, even, does it deprive it of all value as a practical guide. Even if we admit the truth of the sarcasm that, to apply the principle in practice, we need a fresh general rule for each particular action, we have not disposed either of its truth or of its practical value.

Let us see what we have left if we do admit that we cannot say beforehand what characteristics or circumstances of an action are relevant to its rightness or wrongness. We can keep the conviction that the rightness or wrongness of any action depends on some or all of its general characteristics. And these general characteristics can, in principle at any rate, be equally well characteristics of other actions. It is in virtue of some universal property or properties that an act is right or wrong, not in virtue of its being this particular act and no other. Whatever characteristics may be relevant to its moral value, its pure particularity or individuality or uniqueness is not relevant.

What gives a particular act its particularity is a metaphysical question which need not be discussed here. It might be suggested that it was its position in space and time, or perhaps we should say in space-time. And certainly it would be hard to imagine anyone contending that mere position in space and time had by itself any relevance to the rightness or wrongness of an action. We should never suggest, for instance, that a mere change in the place or the time of an action, irrespective of all other circumstances, could possibly change it from a right action to a wrong action or *vice versa*. In that sense, "once right, always right" seems as certain a deliverance of our moral consciousness as it is possible to have, so certain, in fact, that it is of comparatively little interest.

What is of much greater interest is the question of the relevance of the particularity and uniqueness, not of the action, but of the agent. And, on this point, the Kantian principle asserts that the bare fact that it is I who am acting, not you or anyone else, apart from the general characteristics of the action, is not relevant to its rightness or wrongness. "But who said it was?" I can imagine an objector asking. Probably no one as a matter of explicit doctrine. But in practice, on the other hand, very many people on very many occasions have acted as if it were. It is a constant and deep-rooted tendency in human

beings to apply different principles and different standards of judgement to their own conduct from those which they apply to the conduct of others. And it is this deep-rooted tendency that Kant's principle warns us against and condemns.

His warning takes the form of the statement that an essential feature of wrong-doing is making an exception in favour of oneself. He asserts that, when doing wrong, we do not really will that other people should act in the same way. We may feel hesitation in accepting this as an absolute, universal, necessary truth about wrong-doing, known *a priori*. But as a piece of psychological observation, of generalisation from experience, it seems a very shrewd and well-observed remark. It is certainly a feature of a very numerous species of wrong actions. The practical procedure that it suggests is that, when any doubt is suggested about the rightness or wrongness of an action, we should ask ourselves the question, Should I choose that anyone else in the same circumstances should act in the same way? Of course, to ask such a question is not to answer it. And even to bring ourselves to ask the question is not a simple or easy thing. Further, it is probably true that this is not the only question that needs to be asked. Particularly, in cases of genuine difference of opinion on morality, it gives us no help; indeed, it is just in such cases that Kant's arguments in general seem least helpful. But still the fact remains that if we could always genuinely and honestly ask ourselves such a question our conduct would unquestionably be considerably modified; we should do many things that we have left undone, and leave undone many things that we have done.

Thus understood, the principle makes no assertion about which circumstances or characteristics of the action are relevant and which may be ignored. For the purposes of applying it in practice we may imagine all the circumstances to be precisely the same, except that it is another individual who is acting. That is the one feature of the occasion that should be irrelevant to our decision. And it is a very influential feature, as we have seen, and one which it is much more difficult to disregard as irrelevant than we might think at first sight. If we succeed in doing this we may expect to find that the question what other features of the situation may be disregarded as irrelevant becomes much easier to answer than it did before, though doubtless some doubts and difficulties may remain in some cases.

Among these difficulties may, on occasions, be the problem of how far the feelings and emotions of the agent may be taken into account in deciding how he ought to act. It is worth while

saying a word about this because Dr. Broad, in his *Five Types of Ethical Theory*, seems to take Kant's principle to mean that the feelings of the agent must never be taken into account in moral decisions, and he bases a criticism of Kant on this. I am not sure how far the particular instance he gives would be accepted by Kant as, properly speaking, a moral problem at all. Still there can be no doubt that on any theory there may be occasions on which the feelings of the agent are relevant to a moral decision. But I can find nothing in Kant's principle, as I have understood it, which is incompatible with a recognition of this. When I ask myself, Should I will another person in these circumstances to act like that? there is no difficulty about imagining the other person as having similar feelings to mine, as well as being in the same external situation. Further, it seems clear that Kant did recognise that on occasions the agent's own feelings should be taken into account in deciding what his duty is. What else than this is he doing when he writes (p. 15) "To secure one's own happiness is a duty, at least indirectly: for discontent with one's condition, under a pressure of many anxieties and amidst unsatisfied wants, might easily become a great temptation to transgression of duty"?

But it is important to see clearly in what sense it would be justifiable, on Kant's principle, to take one's feelings into account as relevant to a moral decision. It is allowable and even necessary to consider them as data, as part of the evidence on which we have to pronounce judgement. But our consideration of these data, our own feelings, as well as all the other evidence, must be absolutely rational and impartial and not controlled or influenced by these feelings in any way. The distinction is between taking our feelings into account as evidence, which is legitimate, and allowing our feelings to act as a controlling influence, determining the direction of our thinking and consequently the conclusion we come to, which is wrong. This distinction is important and is clear enough in principle, though not always easy to observe in practice.

To return to our main problem, what have we found, so far, that we can accept in Kant's account as thus interpreted? Less than he thought, no doubt. We cannot admit his claim to have stated with absolute *a priori* certainty the most essential characteristic of right action, in such a way that it would always be possible to recognise it whenever it was present. What he does seem to have done successfully is to state an essential feature, though not the only essential feature, of the moral judgement, something that we must always imply when we genuinely judge

any action to be right. It must always be implied in such a judgement that we should will anyone else in the same circumstances to act in the same way.

Note how much that is really significant this tells us. Kant is not saying merely that if I think that I ought to do this action, I must also believe that anyone else ought to do the same action in the same circumstances. That, no doubt, is implied. But he goes further. He does not merely take the moral judgement for granted and warn us against inconsistency in applying it. He goes some way in the analysis of this moral judgement. For he tells us that, in making it, not only do we imply that we should repeat it for a similar action of another person, but also that we should actually choose or will that any other person should act similarly in similar circumstances. If we did not choose or will this we could not be genuinely judging the action to be right. "If", he says, for instance (p. 42), "we attend to ourselves on occasion of any transgression of duty, we shall find that we in fact do not will that our maxim should be a universal law." This clearly goes further than the simple statement that what is right for one person is right for another. It tells us that we cannot really believe that an action is right for one person, particularly for ourselves, unless we can truly say that we should choose or decide that anyone else should act similarly. This is, of course, generally a hypothetical judgement, in the sense that it is rarely in our power to decide how another person shall act. But it is none the less capable of application by an effort of the imagination. And such an application, if truly carried out, would be fruitful in results.

Just because it gives us genuine fresh information about the implications of the moral judgement, the principle is less obvious than the simple statement that what we judge right for one we judge right for another. Yet I think that reflection shows that this attitude really is implied in any genuine judgement that a certain action is right. Further, I think we could say that we could not genuinely believe an action to be wrong if we could truly say that we should will or choose that everyone else in similar circumstances should perform it. We might, of course, say that we thought it wrong, if we were merely echoing conventional judgements at second hand without thinking. But it would not be a genuine conviction.¹

¹ Is not this the argument underlying the *Gorgias*? Callicles starts by posing as the absolutely non-moral man, moved solely by his own private desires of the moment and the pursuit of his own pleasure. But before long it becomes apparent that he is really willing a general order of

Now, if this is a correct analysis of the implications of the moral judgement, it is obviously an important service to thought to have arrived at it. But it is not the service that Kant thought he was performing. If there is one point on which he is anxious to insist above all others it is that his results must take the form of absolutely universal and necessary laws, known *a priori* without any element in them derived from experience. Yet it is clear that the conclusions with which we are presented now are based on experience and observation, of our own and other people's moral judgements. Further when we apply these conclusions, when we ask, for instance, of any particular action, Should we will anyone else to act in the same way? the answer can only be found in our own experience. It does not present itself to us as a logical necessity, the opposite of which is unthinkable, but as a matter of fact. In fact, we should or should not will this.

But, in admitting this, we may claim that we are not really departing as far from Kant's practice as we are from his theory. For, whatever his intentions may have been, it can hardly be doubted that in fact his results are based throughout on experience. His protest against basing morality on particular examples refers only to the impossibility of discovering the moral ideal by generalising from the behaviour of actual persons. He does not see that, in analysing "the universally received notions of morality", his work is bound to be very largely a matter of empirical observation of how people actually do think about moral questions and what the content of our moral judgements really is.

We can see particularly clearly how dependent he is in fact on empirical observation when we consider his attempt to apply the test of universalisation to particular kinds of behaviour. If he really wishes to keep it to the "bare form of law" without the admixture of any empirical element, the only kind of test that he has the right to apply is the purely logical possibility of universalising the maxim, that is to say the absence of self-contradiction in its universal application. Yet he never succeeds in demonstrating the necessary self-contradiction in any of the actions that he condemns. At the most he gives us a demonstration of the physical impossibility of a principle being applied universally, based on knowledge which can only be empirical of how people would act in certain circumstances. Thus his argu-

things to exist, irrespective of his own pleasure. And he stands revealed as a moralist *malgré lui*, with standards and ideals of universal application, which have no necessary connection with what he would like or enjoy.

ment (p. 115) that, if everyone stole deposits entrusted to them if they could do so safely, the result would be that there would be no more deposits, has no logical necessity about it. There is nothing unthinkable or self-contradictory in imagining people going on continually allowing themselves to be deceived and robbed over and over again. It is merely an empirical judgement based on knowledge of actual human nature that people would not in fact stand this for very long.

In some of his other instances this is even more obvious. In the imagined case (p. 41) of the society of people who, like the South Sea Islanders, let their talents rust and devote themselves to idleness and enjoyment, he has to appeal to a crude teleology which has no logical necessity at all. And in the imagined case that follows this, of the man who will not help others and is ready to do without help from them, all he can do is to suggest that the consequences of universal application of such a rule might be unpleasant to the man, and deprive him of something that he wanted. The contradiction, here, has nothing necessary about it. It is not self-contradiction, but contradiction of some other desire that, human beings being what they are, a man will probably have. And if the man is prepared to sacrifice this desire, which is obviously perfectly possible, there is no contradiction anywhere at all.

To return to the main argument, we have so far accepted Kant's account as an analysis of the moral judgement which does justice to the demand for universality which seems to be implied in such judgement. It does this by insisting that the rightness or wrongness of the action is not affected by the particular person doing the action, in the sense described above. We have said nothing so far about the other characteristics of the action. In fact, we have rather proceeded on the assumption that any other characteristics of the action may be relevant to its moral quality, and that no single characteristic or group of characteristics is necessarily and always associated with rightness or wrongness. The result of such an assumption would be that there really would have to be a general law for each particular action if there were really to be laws at all. Yet is such a result quite satisfactory? Is there no more than this in the demand, which we have found so deep and widespread, for a real system of general rules of morality? We must go back and reconsider this question, even at the risk of having to traverse some very well-worn ground and to recall some very familiar arguments.

The belief in the possibility of universal moral rules depends,

once more, on the assumption that certain general characteristics of action are necessarily connected with rightness or wrongness, so that actions in which these characteristics are found are always and necessarily right or wrong, irrespective of any other characteristics which the action may have. And, as thus stated, it seemed that the assumption must be rejected, because when we examined our moral consciousness a little more thoroughly, we could not find any such characteristics in actions, considered simply as actions. As Plato would say, of all the just actions there is not one that might not appear as unjust, in certain circumstances. We can never feel safe in ignoring all other possible features of the action and its circumstances, and judging on one feature alone. To do that we should have to say that the one characteristic which, considered by itself, would be recognised as making the action right, could not possibly be found together with another characteristic, which had equal or greater claims to be recognised as making the action wrong. Yet it seems difficult even to imagine any such characteristics of actions that absolutely exclude the possibility of the action having other characteristics which counterbalance it morally. In fact, of course, we are constantly finding such characteristics together, like the characteristic of being a lie together with the characteristic of saving an innocent life. That is the conflict of duties. And if the general features of actions were absolutely necessarily connected with rightness or wrongness, we should be faced in such cases with an insoluble contradiction, like the irresistible force coming up against the immovable object.

I find that many, if not most, students of philosophy, when they first begin to see the inadequacy of the simple popular notion of morality as a system of universal rules approving or condemning absolutely certain classes of actions, tend to turn as the quickest and readiest way out to what we may call the Utilitarian solution. I use this word in the broadest sense as indicating any view which makes the morality of actions depend on their consequences or results. I am not confining it to views which make the sole relevant result the production of pleasure or pain. It would include, for instance, the doctrine of *Principia Ethica* which makes the morality of actions depend on the production of the greatest amount of an undefined and indefinable goodness.

Now there is no doubt that judging actions by their consequences is at present rather out of fashion in philosophical circles. So it is perhaps necessary to emphasise what a strong case there is in favour of it. It, like the rival system of judging which we have just been considering, can find much support in our common

notions about right and wrong. If we try to give a reason why an action is right or wrong we shall find ourselves, in ordinary conversation, arguing on the basis of its consequences perhaps as often as we find ourselves arguing on the basis of its general nature. We recognise, very naturally, that actions do have consequences, good or bad, and we readily admit that we cannot escape the moral responsibility for the natural results of our actions. To say that we acted in such-and-such a way without considering the consequences would generally be taken as a condemnation of our action. No action is absolutely isolated, a separate whole which can be judged entirely by itself.

It might be argued that this is true of many or most actions, but not of all. It would apply only to one class of actions, those which are good or bad simply as means. It would not apply to the other class, those actions which are good or bad or right or wrong in themselves. But, the Utilitarian would ask, are there really any such actions? In practice such a division into two classes breaks down. For any action of a kind which ordinarily we judge to be right or wrong in itself can on occasions pass over into the other class, and be judged by the consequences, if the consequences are serious enough. We can probably all imagine possible consequences of any kind of action which would seem to us an absolutely decisive and sufficient reason for doing or not doing such an action.

Further Utilitarianism has the great advantage that it offers a solution of the difficulty of the apparent conflict of duties. It does not, of course, in itself answer the practical question in each particular case. But it tells us what the question is. It gives us an intelligible and applicable principle on which to work, and a basis for real discussion. We are not thrown back on the assertion and counter-assertion of unproved and unprovable intuitions. Or at any rate the appeal to them is postponed as long as possible.

Of course, it solves the problem of conflict of duties by showing that there is not really a conflict at all. And this to some may seem just its weakness. For they would urge that our moral experience makes it clear that there is a conflict. More generally, they would appeal to the fact that we do not in many cases judge an action right or wrong because of its consequences at all. The obligation to keep a promise made, for instance, does not appear to us as an obligation on any grounds of consequences.

I think that the Utilitarian would probably reply to this, with much force, that his opponent has no right to insist on his accepting without question every apparent deliverance of uncriticised

moral experience. We must remember how little of our ordinary moral opinion is really the result of independent thinking and how much is influenced by custom and habit and the suggestion of accepted ideas. The most that can be demanded of him is that he should explain how such notions came to be held. This he is quite prepared to do.

His explanation runs on very familiar lines. He would say that certain types of action will, in fact, in most circumstances that are likely to occur, produce a balance of good. We get therefore into the habit of willing or approving actions of this kind without reference to the consequences, very often starting the habit under the influence of the accepted ideas amidst which we grow up. Indeed, he would probably say, it is very desirable that this should be so. The desire for definite laws of conduct, that shrinking from allowing exceptions which is expressed in the where-are-you-going-to-draw-the-line argument, may not be defensible in principle, but it has a very sound psychological basis. It is certainly a *γενναῖον ψεῦδος*. An absolutely rational and unprejudiced thinker would doubtless be right to ignore general rules and to think out the consequences in each particular case. But, apart from practical difficulties about the time this would take, most people have not strong enough heads to be trusted with such a method. It is such a difficult and delicate matter that it is particularly easy, in applying it, to be prejudiced by personal desires and emotions. It is advisable, therefore, for most of us to get into the habit of thinking in terms of general rules and to feel uneasy about breaking them.

I think there is more force in this argument than its modern critics are willing to allow. At any rate, the general warning against accepting too readily ordinary moral assumptions at their face value without criticism deserves to be borne in mind. We shall do well to remember how many of our ordinary assumptions come to us simply on the strength of accepted conventions. And though, no doubt, there is always some basis for the convention, it very often turns out to be something very different from what the convention, taken literally, says. Therefore, though doubtless we shall have to come to this at some point, we should be very slow to accept the statement that we do not, in fact, judge actions on those grounds, as a final and decisive proof that those are not the grounds on which they ought to be judged.

Still, when all this is recognised to the full, it remains very difficult to accept the account quite as it stands. For we are familiar with many obvious cases in which a course of action has become recognised as the usual means of attaining a good end,

so that we get into the habit of following it, and then we are faced with unusual circumstances in which we have to follow some other course to attain the same end. There may be, for instance, some accepted method of treating a certain disease, which is in the great majority of cases successful. And yet in certain exceptional circumstances it may have to be abandoned in favour of another method. Similar occasions are familiar in handling educational problems.

In such cases the effort of breaking the habit is often difficult and unpleasant. But, once we have got over this difficulty, we have no further reason for dissatisfaction. If the result produced by the unusual method in the unusual circumstances is equally satisfactory, we do not feel that we have sacrificed anything by having had to use this method. Apart from the difficulty of breaking our habit, we have no reason to regret the unusual circumstances or to wish that they had been different. We are not left with a lingering feeling that there must be something wrong about them.

Yet in other cases our experience is very different. When, for instance, we have to tell a lie to avoid some great evil, we may feel without any doubt that in those circumstances we were bound to tell the lie, and we may have no shadow of remorse for our action. But we are left with, more than a lingering feeling, a very strong conviction that it was very regrettable that we had to do this. We feel that the circumstances that made it necessary must have been bad, and that we should have altered them if we could. We take this fact that we had to tell the lie as in itself a decisive proof that the circumstances must have been bad. The difference between telling the truth and lying is not merely a matter of statistics, in that the one produces the best results in the great majority of cases, as it is for the doctor or teacher who has to employ an unusual method in a small minority of cases. So that, in spite of all, it is very hard to believe that the difference between lying and not lying is merely a matter of finding the best means to an end in particular cases.

Dr. Ross would suggest meeting this difficulty by regarding certain classes of action, such as truth telling, as having always a *prima facie* rightness or a tendency to be right (*The Right and the Good*, pp. 19-30), though a particular member of the class may in some circumstances not actually be right. This seems to me an admirable statement of the situation with which our ordinary moral notions present us. But I find it impossible to accept it as a final account. It appears to me to be merely stating the problem, not solving it. At any rate, I should feel very unwilling

to accept his account unless every alternative had been absolutely proved untenable. As it stands, it presents us with too many ultimates and indefinables, goodness, rightness and *prima facie* rightness. And it seems to me a very sound philosophical impulse to try to reduce these as far as possible. Such an impulse has without doubt proved very successful as a guiding principle of scientific research.

At any rate, this particular ultimate, *prima facie* rightness, seems to cry aloud for further explanation, in particular in respect to its relation to actual rightness. Is the one idea derived from the other? It is hard to believe that they both occur to us independently. In fact, it seems to me pretty clear that the notion of simple rightness is the one that we start with, and that the notion of *prima facie* rightness, if we have it at all, is a construction from this, designed to meet certain difficulties, not an original datum of our moral experience at all. The nearest Dr. Ross seems to come to an explanation is to describe it further as equivalent to having a tendency to be right. But the notion of tendency in this connection seems very unsatisfactory.

A minor difficulty is that the normal use of "tendency" implies, I think always, a tendency to some kind of action or behaviour. A tendency to have a certain quality (except in so far as that is a result of the action) is to me a new and very puzzling notion. But a more important objection is that in other fields of investigation the statement of a tendency is generally taken as a confession of ignorance and an invitation to further investigation. Dr. Ross's illustration from the laws of nature seems to me unfortunate. The scientist, so far as I can judge, is never satisfied with leaving them as statements of tendencies. He always tries to put them in the form of something actually happening, which in certain defined circumstances will produce certain defined results. If he fails in this, he gives up talking about tendencies and states what actually happens in the form of a purely statistical law.

I suppose we think of tendencies to action on the analogy of forces in mechanics, which will impel a body in a certain direction at a certain velocity unless other forces act on it in another direction. But, as applied to the rightness of actions, the comparison has a difficulty, besides that which Dr. Ross observes.¹ The

¹ Dr. Ross's own warning (p. 29) is against regarding his "tendency to be right" as implying a causal relation between temporally successive events, which he regards as suggested by the usual use of "tendency". It will be clear from what is said above that I regard this as only one element,

final movement of the body is the joint result of all the forces, each of which contributes something to it. But in the case of a particular action in particular circumstances it is actually either right or wrong. If it is wrong in those circumstances it makes no difference to its wrongness that this class of actions is *prima facie* right. So that its *prima facie* rightness would resemble a force which has no effect at all. It seems to me inherent in the very notion of rightness that in any action it is either there or not there. And I find it difficult to square this with the notion of a *prima facie* rightness which in certain actions seems to be in a sense there and not there at the same time. For these reasons *prima facie* rightness appears to me as a fact which has to be explained by making it dependent upon something else, not an ultimate datum which we simply have to accept.

The Utilitarian solves the difficulty by making the moral quality of actions, as actions, not an ultimate fact about them at all, but derivative from something else. We cannot accept his view of what this something else is. But his line of approach seems to me perfectly sound. We must look for something, other than actions, which is always and absolutely good. And its relation to actions must be such that it is possible to see why certain types of action are generally right but in exceptional circumstances may be wrong.

We may pause here to ask whether Kant is really open to the criticism of making actions the ultimate bearers of moral qualities. He is sometimes spoken of as making the moral quality of the action depend on the motive: an action is only good if it is done from respect for the moral law, and the only thing absolutely good is the good will. But if we ask where the goodness of the good will is to be looked for, we find the answer given in terms of a description of the nature of the actions which it wills. The good motive is the will to do certain kinds of action, namely, actions which conform to the conditions of universality. What is absolutely good is action of a certain type done because it is of that type. The moral law commands actions of a certain sort, not motives nor character.

As against this I would suggest that we revert to a familiar view and make the ultimate bearers of moral qualities, certain

and in the present connection not a very important element, in the implications of the word. Dr. Ross goes on to say that what he means is analogous rather to the relation between the various attributes of a mathematical figure. But surely all the attributes of a mathematical figure either belong or do not belong to any particular figure. There is nothing, that I can think of, that we could possibly describe as a *prima facie* attribute or a tendency to have a certain attribute.

states of mind or attitudes of mind of conscious beings. Actions would, then, derive their moral quality from their relations to these. I do not propose to offer here a logical definition of what I mean by state of mind. It may become clearer, so far as it needs clearing, by the use of instances in the course of the further discussion. It is probably justifiable, in any case, to suppose that the term will cover a considerable area of common meaning for everyone. If any difficulties arise with regard to particular cases, they may be dealt with as they arise.

This view may look at first sight like our old friend, the view that actions derive their moral quality from their motives alone. And I am not prepared to deny that the two views have a good deal in common. But "motive" is an ambiguous term which may mean either more or less than state of mind. It is not necessary to go into an analysis of the possible meanings of the term "motive". It will be sufficient to note two points which have to be borne in mind if the view now advanced is not to be misunderstood.

A state of mind may, of course, be a motive or part of a motive to an action. But it is always, also, more than this: it does not exhaust itself in becoming a motive to an action. Some states of mind, indeed, such as æsthetic enjoyment, do not normally express themselves in action at all. And others may not do so in certain circumstances. But a good or bad state of mind will none the less be good or bad if it does not lead to action at all. It is not only as a motive to action that it possesses its moral quality. Secondly, it must be remembered that the relation of motive is not the only possible relation between a state of mind and an action. An action may equally well be productive of a state of mind, either in the agent or in other people. And this relation also has to be taken into account in assessing the moral value of the action.

Kant, of course, would reject this, on the same grounds as those on which Dr. Ross would reject it. On the basis of his principle, "I ought, therefore I can," he would say that a right action must be an action that we can choose to do. And while, within the limits of physical possibility, we can choose what action we shall do, we cannot choose our motives. If we can turn the edge of this objection, we have removed the most serious difficulty in the way of accepting our theory.

It is true, no doubt, that we cannot produce a particular state of mind in ourselves by a single act of will. We cannot choose at one stroke what we are going to want and what we are going to feel like. We cannot, therefore, create a motive that is not,

in some sense, already there. Even this, of course, is only true of a single action produced immediately by an act of will. Obviously we can do a lot to educate and develop our feelings over a space of time by a series of actions. Still, as far as it goes, our first statement is correct.

If, however, we were to extend it to mean that we have no choice of the motives from which we are going to act we should be saying what is clearly not true at all. In any sense in which we can choose what action we shall do, we can choose what motive we shall act from. We are conscious of various impulses and desires moving us in this direction and that. And we can and often do choose or reject a course of action towards which a particular desire impels us because we think that that is a good or bad motive. There is a story about Plato, which is told in various different forms by ancient authors. In the simplest form, it is related that he said once to a delinquent slave, "I should have punished you, if I had not been angry". Whether this story is true or not, it is clearly perfectly possible. And it seems a clear instance of deciding about a course of action because of the motive which prompted to it; in other words, of choosing our motive. We know, also, how important we regard it to be clear about our motives, and not to deceive ourselves about them. This implies the possibility of choosing which, among possible motives, is to be the actual motive of our course of action. We often say, too, that we ought or ought not to act from a certain state of mind, that, for instance, like Plato, we ought not to act in anger. So that, altogether, I find no difficulty in saying that we ought or that it is right or our duty to act from certain motives and not from others.

I hold, then, that certain states of mind are good always and necessarily, and certain others bad. Obviously it would be impossible to attempt to say here which they are. Doubtless some of them are very complicated mixtures of different elements, particularly, perhaps, the good ones. Prof. Moore has taught us that some elements may be essential parts of a good state of mind yet not necessarily good in isolation. It is easier to point out certain states of mind which are always and necessarily bad. For instance, it can hardly be doubted that hatred of an individual is always bad. So is cruelty, in the sense of enjoying the infliction of pain. These are bad absolutely in any possible circumstances.

It follows, therefore, that actions which express or result from such feelings are always and necessarily bad. That would, probably, be universally admitted. But it also follows, however

sharply you draw the distinction, that such an action is wrong.¹ If we have such feelings it is an absolute duty not to give way to them and let them control our actions. This duty is quite independent of circumstances or consequences. On the other hand, to act in the same way as such feelings would lead us to act, but from other motives, might on occasions be right.

This seems to afford a solution of the difficulty that certain kinds of action may sometimes be right and sometimes wrong according to circumstances, while at the same time we feel that either their rightness or their wrongness belongs to them in a sense in which the opposite quality does not. Certain kinds of action are the natural and direct consequences of certain states of mind. The state of mind inclines us to them regardless of circumstances. If we could control or alter the circumstances we should, while under the domination of that state of mind, make them so that they would favour actions of that kind. So the *prima facie* rightness or wrongness of a class of actions arises from the goodness or badness of the state of mind which naturally and directly leads to actions of that class or with those characteristics. That class of action is obviously connected in a very special way with that state of mind.

Thus, for instance, love of cruelty would naturally and directly lead us to try to inflict pain, whatever the circumstances. Other states of mind, which are good, might lead us to inflict pain in special circumstances, for instance, for remedial purposes. But they would not make us like doing so. We should say that we were forced to do it by the circumstances and that we would alter the circumstances if we could. Obviously, that characteristic of actions which we describe as inflicting pain is connected much more closely and intimately with the first state of mind than with the others. And it is because that state of mind is bad that inflicting pain is *prima facie* wrong or has a tendency to be wrong.

Other cases are more complicated, but the essential principles are the same. Thus, the state of mind which makes us want to tell the truth (respect for others, desire to be on terms of trust and confidence with them, and so on) is good, and the state of mind which likes telling lies or even which has no particular

¹ I have not attempted here to discuss Dr. Ross's important distinction between "right" and "good" directly and in detail. The only sense in which I could admit it I have stated in my *Moral Theory*, p. 179 and elsewhere. Though there is much in that book that I would modify now, on this particular point I adhere to the views there expressed. Prof. De Burgh, in his review of Dr. Ross's book in *Philosophy*, advocates a similar view.

dislike of telling lies is bad. Hence telling a lie is *prima facie* wrong and telling the truth *prima facie* right. But always the moral quality of the action, whether it is its rightness or its goodness, is derivative from its relation to the state of mind.

It remains to clear up one or two possible sources of misunderstanding. It is obvious that, when we are faced with the practical problem, What ought I to do? it is not always possible to solve it by reference to a state of mind, however carefully we scrutinise our motives. And we certainly often ask ourselves, Ought I to do this or that? Is this right or wrong? without conscious reference to the state of mind which prompts to it. Yet I think that, on inspection, we find that when we are really faced with such a situation and when we arrive at a decision on such a question, we are not ignoring the state of mind but rather assuming it and taking it for granted. After all, in practice, we could not ask ourselves the question, Ought I to do this or that? unless we had attained at least such a degree of goodness of state of mind that we wanted to be guided by the answer to the question, or at least that it made some difference to us.

When, taking for granted the good state of mind, we ask ourselves, What action is right? we most often, or at any rate very often, answer the question by reference to the consequences, the relevant consequences themselves being ultimately—sometimes at a very distant remove—the production of certain states of mind. But we are only justified in considering the consequences if the state of mind in which we approach the question is good. Indeed, it will be the state of mind in which we approach the question which will decide what consequences we take into account. Of course, in practice we very often allow ourselves, and quite rightly allow ourselves, to be guided by current opinions and the accepted standards of conduct of our society. We must not fall into the *naïveté* of talking as if every moral decision was the result of a piece of original thinking of our own. I believe that the part played by these accepted standards is apt to be seriously underestimated in current discussions of the subject. And I incline to the view that whenever we find ourselves thinking of an action as simply right or wrong, without reference either to the state of mind of which it is an expression or to the consequences, we are really under the influence of the suggestion of accepted standards, which we have not examined or criticised. But I would guard myself carefully against any suggestion that this is necessarily a bad thing. For a great part of our conduct it is inevitable and desirable.

It remains just to raise a question which might at first sight

seem to present a difficulty. Ought a man to do an action, which will have good consequences and which is, in its external features, such as a good man would do, if his motive for doing it is bad? Ought, for instance, a man inspired by love of cruelty, to inflict pain which in fact is a useful or necessary pain?

The question, however, does not on investigation turn out to be so difficult as it may appear at first sight. It is obvious that it cannot possibly present itself to anyone as a practical problem. For if a man were in the state of mind in which he could genuinely ask himself that question, and if the answer to it affected his decision, he could not be merely acting from cruelty.

It seems to me that the question is not only purely academic, but strictly unmeaning. We can ask, of course, whether such an action would be good or bad, and we should reply unhesitatingly that it was a bad action, though it happened to have good consequences. But to ask whether a man *ought* to act like that implies that he was faced with a conscious choice, which he would not be if he were entirely under the domination of one motive. What we are really doing in asking such a question is to imagine ourselves in such a man's situation, and then, without realising it, to alter the situation by introducing our own motives or state of mind into it, without which it would be impossible to ask the question at all.

I conclude, then, that part, at any rate, of Kant's difficulties arose from his insistence on making the action an ultimate bearer of the moral quality. The difficulties would be avoided by applying his argument solely to states of mind. At any rate there is no difficulty in classifying certain general kinds of state of mind as always and necessarily good or bad. How far this universality is an important fact about them will be a subject for further investigation.

NOTE.—This article was written, and in the hands of the Editor substantially in its present form, before I had read Dr. Joseph's penetrating discussion in *Some Problems in Ethics*. When I did, I found that he had anticipated me in the development (much more thorough than mine) of certain lines of thought. I have left my article as originally written, without reference to him, as the independent coincidence of our investigations seemed itself of some interest. But I should not like him to think that I had merely appropriated his ideas without acknowledgement.

III.—MATHEMATICS AND DIALECTIC IN THE *REPUBLIC* VI.-VII. (I.).

BY F. M. CORNFORD.

THIS paper has two objects : (1) to define the mental experiences which Plato distinguishes as *noesis* and *dianoia* ; (2) to disentangle certain threads he has woven together in his scheme of higher education. The *Republic* is a long book, and Plato saves space by treating concurrently themes which a modern writer would keep apart. It is hardly too much to say that Plato, at the height of his powers, never wasted a word ; whereas many readers of Book VII. must have been troubled by an impression, which the commentaries do nothing to remove, that dialectic is described over and over again for no clear reason. I hope to show that each of these descriptions has a special purpose and meaning, which can be distinguished when they are assigned to two programmes, one of education, the other of research, with different aims and methods.

I. NOESIS AND DIANOIA.

In setting forth the analogy between the Good and the sun, Plato has drawn the main distinction, already familiar,¹ between the objects of intelligence (*νοητά*), namely the Ideas—Good, Beautiful, and the rest—and the many things seen or otherwise perceived (*αἰσθητά*). The diagram of the Line again divides each region into two. There are four corresponding ‘mental experiences’ (*παθήματα ἐν τῇ ψυχῇ*, 511D). We are not concerned with the two lowest, confined to perception of, and beliefs about, sense-objects, but only with the two highest, *noesis* and *dianoia*, whose field is the intelligible. This is the first place where Plato contrasts two modes of operation of the reasoning part of the soul. The distinction is then allowed to lapse in the long review of the mathematical sciences in VII., where, with Plato’s usual avoidance of technical language, *νόησις*, *διάνοια*, and *λογισμός* are synonyms, all meaning reflection or intelligence

¹ 507A, ἄλλοτε ἤδη πολλάκις εἰρημένα, e.g., at *Phaedo*, 78C-79C, of which this passage might be a summary.

or abstract thinking.¹ But *noesis* and *dianoia* become distinct again in the subsequent accounts of dialectic (531D-535A). What is the ground of the distinction?

It first occurs in the contrast of mathematics and dialectic (510B-511E). Here it will be convenient to keep apart four elements in the contrast: (a) Objects; (b) Methods of procedure; (c) Movements of thought, deductive and intuitive, shown in the procedures; (d) States of mind, characteristic of the mathematician and of the accomplished dialectician.

(a) *Objects*. Where the intelligible section is subdivided, clearly some distinction of objects is meant. I agree with critics who hold that nothing here points to a class of mathematical numbers and figures intermediate between Ideas and sensible things. Further, whatever may be said elsewhere about the extent of the intelligible world, the only Ideas that figure in the whole scheme of education are the moral (507B) and the mathematical (510D) Ideas. These, and truths about them, form, so far as can be seen, the whole relevant content of the intelligible realm. It appears also that the moral Ideas are not a higher class, apprehended by *noesis*, the mathematical a lower, apprehended by *dianoia*; for the mathematical can be objects of *noesis* when seen 'in connection with a first principle' (*νοητῶν ὄντων μετὰ ἀρχῆς*, 511D). What difference, then, is there in the objects?

The only distinction indicated is not a difference of higher and lower, but lies in the natures of the two classes of Ideas. Mathematics can use 'visible images': a number can be represented by a collection of things, a square by a picture. Such aids have always been employed; the mathematician is not blamed here for using them; he knows he is not thinking of these collections and pictures, but of Ideas (510D). Of moral Ideas there are no visible images; their likenesses (*εἰκόνες*) in this world are invisible properties of souls (402C). Hence it is harder to see the difference between the justice of a particular action or character and Justice itself than to distinguish two apples from the number 2, also represented by other visible pairs. Accordingly, mathematics serves as the easiest bridge from the sense world to the intelligible, and should precede the study of moral Ideas.² The distinction of objects is a matter of

¹ Cf. παρακαλοῦσα τὴν νόησιν 523B, λογισμὸν τε καὶ νόησιν παρακαλοῦσα 524B, παρακλητικὰ τῆς διανοίας . . . ἐγερτικὰ τῆς νοήσεως 524D.

² Nicomachus, *Introd. Arithm.*, I, 3, 6, κλίμαξί τισι καὶ γεφύραις ὅσκιε ταῦτα τὰ μαθήματα διαβιβάζοντα τὴν διάνοιαν ἡμῶν ἀπὸ τῶν αἰσθητῶν καὶ δοξαστῶν ἐπὶ τὰ νοητὰ καὶ ἐπιστημονικά. The context refers to *Rep.* vii.

expediency in teaching and of no further importance for our purpose.¹

(b) *Procedures*. The contrast of the two procedures, in mathematics and dialectic, does not correspond to the difference, just dismissed, between mathematical and moral Ideas. The dialectical procedure will be found to apply to both fields of objects.

Plato first describes the procedure of mathematics and the condition of the science in his time. The main point is that the prevailing method is deductive, a downward movement from premiss to conclusion: 'the mind is constrained to start its investigation from hypotheses, travelling not towards a beginning (principle) but towards an end (conclusion)' (510B). The geometer, for instance, takes as hypotheses the figures and three kinds of angle, and treating them as known, gives no account of them to himself or to others, as if they were evident to anyone. Starting from these hypotheses, he 'proceeds through all the rest and reaches a conclusion upon the question he set out to investigate.'

We must first fix the meaning of 'hypothesis' in mathematics. Aristotle records two uses of the word, both relevant to Plato's account of mathematics and dialectic. He is writing primarily about logic, not geometry, and we may take it that his definitions of 'hypothesis', 'postulate', 'axiom', etc., were current among mathematicians, and probably formulated in the Academy.

(1) The first is the 'hypothesis relative to the pupil'. The word here bears its old sense of a supposition 'suggested' or 'put to' another person (*ὑποτίθεσθαι τινι*) for his acceptance as a basis of argument—the sense which we shall meet with again in the technique of philosophic conversation.² In the middle of a discussion of the basic truths of demonstrative science (*Anal. Post.*, 1, 10), Aristotle recalls this usage. 'That which is

¹ Plato does not say that geometers are 'forced to use sensible diagrams' either because their science 'depends on hypotheses of which they can give no account' or because 'the hypothesis of three kinds of angles has a spatial character' (Burnet, *Greek Philos.*, i., 229). The word 'forced' (*ἀναγκάζειν*, 510B, 511A) applies only to the use of deductive procedure, and at 511C it is remarked that in studying mathematics we are 'forced' to use abstract reasoning (*διάνοια*) and not the senses.

² Burnet (*Greek Philos.*, 1, 162) explains *ὑποτίθεσθαι* as meaning 'setting before oneself or others a task to be done' or 'a subject to be treated.' He appears to me here to confuse the hypothesis with the enunciation (*πρότασις*), the Q.E.D. or Q.E.F., which states the conclusion desired, not a premiss, of a demonstration or construction.

capable of proof but assumed by the teacher without proof is, if the pupil believes and accepts it, hypothesis—that is, relatively to the pupil; if the pupil has no opinion or a contrary opinion on the matter, the same assumption is a postulate.¹ Here the making of an hypothesis is simply an expedient in conversational teaching. Any proposition in the science may, on some occasion, be taken as an assumption by agreement² between teacher and pupil.

A special case falling under the head of the 'relative' or *ad hoc* hypothesis is any assumption made with a view to the solution of a problem. This procedure 'by way of hypothesis' is illustrated at *Meno*, 86E ff., where the geometer, asked whether a given area can be inscribed in the form of a triangle in a given circle, replies that he does not know yet, but thinks he has a hypothesis that will be useful: only if the given area is of such and such a kind can the inscription be made. 'Accordingly, by using an hypothesis, I am ready to tell you what results—whether the thing is possible or not.' This is an example of *διορισμός*, 'the determination of the conditions or limits of the possibility of a solution of the problem, whether in its original form or in the form to which it is reduced.'³ The process (to which we shall return later) is analytical, involving the divination of a premiss that must be true if the required conclusion is to follow. The method can be applied to the problems presented by observed facts in nature. Thus Plato is said to have set the Academy the problem of finding out on what assumptions (*τίνων ὑποτεθέντων*) the apparent irregularity of the heavenly bodies' movements can be reconciled with their real regularity so as to 'save the appearances'.⁴ The *Republic* says that the treatment of 'problems' should figure, not only in geometry, but in astronomical inquiry (530B) and in harmonics (531C).

(2) The science itself, on the other hand, has its own hypotheses (in a narrow sense), which are not 'relative', but basic truths (*ἀρχαί*). Aristotle⁵ explains that any demonstrative

¹ 76b, 27. Cf. Proclus, *Euc. I.*, p. 76, 6 (Friedl.) Throughout this paper I have made much use of Proclus' Commentary, which, when allowance is made for neoplatonic mysticism, illuminates the Greek conception of mathematical science and its methods.

² Cf. *E.N.*, 1133 b, 20, coin as an agreed common measure of commodities is 'hypothetical', ἐξ ὑποθέσεως· διὸ νόμισμα καλεῖται, or 'conventional', κατὰ συνθήκην, καὶ διὰ τοῦτο τοῦνομα ἔχει νόμισμα (a 29). The two expressions are here synonymous.

³ Heath, *Greek Math.*, i., 303. Proclus, *Euc. I.*, p. 66.

⁴ Simplic., *de caelo*, 488, 21; 492, 31 (Heiberg). Cf. Burnet, *Greek Philos.*, I., 222.

⁵ *Anal. Post.*, I., 10. Cf. Heath, *Thirteen Books of Euclid*, I., 117 ff.

science must start from necessary truths taken as indemonstrable. Thus geometry takes for granted (*λαμβάνει*), besides the common axioms, (a) the *definitions* of its subject-matter (magnitude) and of certain 'essential attributes' of magnitude, such as 'straight', 'triangular', and (b) the *existence* of magnitude and of certain other primary things corresponding to the definitions, *viz.*, points and lines. The existence of everything else (*e.g.*, the various figures and their properties) has to be proved by construction and demonstration. Definitions are not hypotheses: they do not assert the existence of anything, but only state a meaning that must be understood. Hypotheses are assumptions of the existence of things defined.

In speaking of the hypotheses of mathematics (510 C), Plato primarily means the 'absolute' kind of hypothesis, not the 'relative'. He seems, moreover, like Aristotle, to restrict 'hypotheses' to assumptions of existence and not to include definitions; a definition in mathematics is itself an 'account' (*λόγος*) of the meaning of a term, and no 'account of it' can be demanded. His instances are 'odd and even (arithmetic), the figures and three kinds of angles (geometry), and other kindred things in each branch of study' (510 C). According to Aristotle, arithmetic and geometry assume the *meaning* (definition) of odd and even, etc., straight and triangular, etc., but the *existence* of these things should be demonstrated. The only things whose existence these sciences are entitled to take for granted as ultimate hypotheses are the unit (arithmetic) and magnitude, points, and lines (geometry). He thus would agree with Plato in condemning mathematicians who should treat as ultimate hypotheses the *existence* of 'odd and even, the figures and three kinds of angles'.

Probably Plato has in mind also the original meaning of *ὑποτίθεσθαι*, and thinks of the mathematician's assumptions as put to the learner for acceptance in the process of instruction. The whole description would fit the conversational method of teaching. When he says, 'starting from the hypotheses, they go through all the rest and reach a conclusion *ὁμολογουμένως*,' this ambiguous word may mean either that the whole demonstration hangs together *consistently* (though it hangs, so to say, in the air so long as the hypothesis is not proved), or that it rests on *agreement* between teacher and pupil to accept the hypothesis. The same ambiguity recurs at 533 C, 'How can such *ὁμολογία* (consistency or agreement) ever become knowledge?'

Geometry still awaited its codification by Euclid. Solid

geometry had 'not yet been discovered' in Socrates' time (528B), and was in process of being discovered at the Academy when the *Republic* was written. The text-book of geometry for the Academy was to be the work of Plato's pupils, Theudius of Magnesia and others; when written, it was a less perfect structure than Euclid's *Elements*.¹ At present the science consisted of a number of theorems, with alternative proofs established by various mathematicians using different hypotheses; the theorems had not yet been fitted together in a single chain of deduction. No one had reduced the primitive hypotheses of the science itself to the smallest possible number, or made out what they were. Plato saw that hypotheses such as those he mentions ought not to be laid down as 'evident to everyone' or taken as principles of which no account could rightly be demanded. They could be traced back to a higher principle. We should then arrive at the genuine hypotheses (or hypothesis) of the science itself. Thence the whole structure could be deduced in a single chain of reasoning, and the gaps between the scattered theorems filled in. Arithmetic and the other branches will be submitted to the same treatment. This belongs to the programme of research that will be outlined.

Turning from the deductive procedure of mathematics to the description of dialectic (511B), we find that the ascent to the first principle is part of the task of dialectic, whose procedure in criticising the current hypotheses of mathematics will thus be in the reverse direction. In mathematical proof the mind 'travels' down through an argument limited by the premisses assumed, 'as if the mind could not mount above its hypotheses' (*τῶν ὑποθέσεων ἀνωτέρω ἐκβαίνειν*, 511A). Dialectic includes an opposite movement of thought, upwards, 'treating its hypotheses not as principles but literally as hypo-theses, positions laid down, like steps'² which discourse can mount upon and take off from, in order that, advancing all the way to that which rests on no

¹ Proclus, *Euchl.*, I., p. 66 (after Eudemos): Leodamas, Archytas, and Theætetus increased the number of theorems and brought them into a more scientific connection; Eudoxus added to the number of universal theorems; Plato's pupils carried the whole of geometry further towards perfection; and Theudius drew up a good statement of the 'elements'. Other improvements are recorded before Euclid completed the structure.

² οἷον ἐπιβάσεις τε καὶ ὀρμάς. The metaphor is from climbing stairs: *Symp.*, 211C, ὥσπερ ἐπαναβαθμοῖς χρώμενον, *Ar. Met.*, 990 a, 5, ἀρχὰς ἱκανὰς ἐπαναβῆναι καὶ ἐπὶ τὰ ἀνωτέρω τῶν ὄντων. The primary and common meaning of ὀρμή is 'impulse' or 'effort' or 'impetus'. It is nearer to 'spring' than to 'spring-board'.

hypothesis¹—to the principle of the whole—it may apprehend that'. We shall discuss later the scope of research in the dialectical criticism of mathematical hypotheses. Here we must consider the two contrasted movements—downwards in mathematical deduction, upwards in dialectical criticism.

(c) *The Two Movements of Thought*.—I shall argue that, where Plato observes a distinction between *noesis* and *dianoia*, *noesis* (in one of its senses) means the upward movement of intuition, *dianoia* (in one of its senses) the downward movement of reasoning in deductive argument.

Plato realised that the mind must possess the power of taking a step or leap upwards from the conclusion to the premiss implied in it. The prior truth cannot, of course, be deduced or proved from the conclusion; it must be grasped (*ᾗψασθαι*, 511B) by an act of analytical penetration. Such an act is involved in the solution 'by way of hypothesis' at *Meno*, 86, already quoted; the geometer directly perceives, without discursive argument, that a prior condition must be satisfied if the desired construction is to follow. Now in a certain passage Proclus has been understood to associate Plato's method of dialectical ascent to genuine principles with the method of analysis in geometry. After mentioning a contemporary with an exceptional gift for obtaining the required result from the fewest possible principles, without working by method, Proclus adds: 'Nevertheless certain methods have been handed down. The finest is the method which by means of analysis carries the thing sought up to an acknowledged principle (*ἐπ' ἀρχὴν ὁμολογουμένην ἀνάγουσα τὸ ζητούμενον*); a method which Plato, as they say, communicated to Leodamas, and by which the latter too is said to have discovered many things in geometry'.² Sir Thomas Heath remarks:

'Analysis being according to the ancient view nothing more than a series of successive reductions of a theorem or problem till it is finally reduced to a theorem or problem already known, it is difficult to see in what Plato's supposed discovery could have consisted; for analysis in this sense must have been frequently used in earlier investigations [of which examples are given]. On the other hand, Proclus's language suggests that what he had in mind was the

¹ *μέχρι τοῦ ἀνυποθέτου*, 511B. Mr. Ross notes that Aristotle (*Met.* 1005 b, 14) uses *ἀνυπόθετον* 'quite in the Platonic sense of the word' of principles 'about which we cannot be deceived, which are best known and rest on no hypothesis, and which must be known if one is to know anything' (Commentary, *ad loc.*, pp. 262-263).

² Proclus, *Eucl.*, I, p. 211, 18, Sir Thomas Heath's translation (*Greek Math.*, I, 291).

philosophical method described in the passage of the *Republic* [511B], which of course does not refer to mathematical analysis at all; it may therefore well be that the idea that Plato discovered the method of analysis is due to a misapprehension. But analysis and synthesis following each other are related in the same way as the upward and downward progressions in the dialectician's intellectual method. It has been suggested, therefore, that Plato's achievement was to observe the importance, from the point of view of logical rigour, of the confirmatory synthesis following analysis.¹

No doubt Plato did not invent the method of analysis; but the connection with dialectical method is closer than is here suggested. Plato may well have been the first to recognise as distinct the movement of thought involved in what Aristotle calls the 'analysis of a mathematical diagram'. Describing deliberation, which proposes an end to be achieved by action and then works backwards along the chain of means to that end, till it reaches, as a first link in the chain, an action that can be at once performed, Aristotle compares this regressive process in the solution of a practical problem to 'analysing a mathematical diagram', where the last step in the analysis becomes the first in the construction that follows. The Paraphrast adds a description of the subsequent deduction: 'the mathematician having reached the last step in his analysis, then assumes that, and, travelling from it through the other steps, so demonstrates the conclusion proposed'.¹

The process of 'analysing a diagram' is described in a curious passage where Aristotle, with instructive ambiguity, uses the word *diagramma* so that commentators doubt whether he means geometrical proofs (Bonitz) or geometrical constructions (Ross).²

Met., 1051 a, 21, '*Diagrammata* are discovered by an activity. For it is by dividing (drawing lines in the given figure) that people discover them. If they had already been divided, they would have been obvious; as it is, they are present potentially. Why are the angles of the triangle equal to two right angles? Because the angles about one point are equal to two right angles. So if the line parallel to the side had already been drawn, the reason would have been immediately plain to inspection. . . . Clearly, then, the potentially existing (*diagrammata*) are discovered by being brought into actuality. The reason is that the activity is intuition' (or, reading *ἡ νόησις ἐνέργεια* with Ross, 'the intuition employed is an activity').

¹ *E.N.*, iii., 3, 11, ὁ βουλευόμενος οἶκε ζητεῖν καὶ ἀναλύειν τὸν εἰρημένον τρόπον ὥσπερ διάγραμμα . . . καὶ τὸ ἔσχατον ἐν τῇ ἀναλύσει πρῶτον εἶναι ἐν τῇ γενέσει. Paraphr. καθάπερ ὁ μαθηματικός, πρὸς ὃ ἔσχατον ἀφίξεται ἀναλύνων, τοῦτο ὑποτιθεῖς καὶ ἀπὸ τούτου διὰ τῶν ἄλλων ὁδεύων ἀποδείκνυσσι τὸ προκειμένον. See Stewart, *Notes*, ad loc.

² Cf. Xen. *Mem.*, IV., 7, Socrates thought geometry should not be studied μέχρι τῶν δυσξυνέτων διαγραμμάτων.

'If they (the 'diagrams' = the given figures) had already been divided, they (the 'diagrams' = geometrical constructions or proofs) would have been obvious'. Aristotle uses the word *diagramma* to mean: (1) the given figure, in which the divisions exist potentially; (2) the figure completed by making the divisions actual and thus exhibiting the proof in a picture, so that one has only to look at it to see the reason (prior truth) actually displayed in the construction itself; and (3) the proof whose 'elements' are so made obvious to inspection. What concerns us is the process by which the reason or prior truth is discerned. The geometer contemplates the given figure, a triangle, either drawn on paper or in the mind's eye. Knowing already that the angles about a single point are equal to two right angles (*Eucl.*, I., 13), he divines that this prior truth is latent in the given figure (*δυνάμει ἐννπάρχει*). He makes it explicit by producing the base of his triangle and drawing the line parallel to the side (\triangle). He thus brings this 'element' in the demonstration into actual existence, making it visible to simple inspection. He has next to demonstrate that he has solved his problem. Having laid bare the 'elements' needed to compose the proof, and ascertained that they are all theorems previously established, he will now frame his demonstration in full discursive form—a deduction starting from the hypothesis, 'Let there be a triangle ABC' (*Eucl.*, I., 32). Aristotle speaks elsewhere of the 'elements of *diagrammata* and of demonstrations in general' as analogous to the elements into which bodies are said to be ultimately divisible. They are 'the primary demonstrations contained in a larger number of consequent demonstrations'.¹ The title of Euclid's *Elements* preserves this meaning.

Themistius² defines analysis as 'assuming a true conclusion and then discovering the premisses by which it is inferred.' Where the problem is a construction, the geometer may start by contemplating a picture of the conclusion desired. In the *Meno* instance, he would draw the given rectangle and a triangle

¹ *Met.*, 1014 a, 31, τὰ τῶν σωμάτων στοιχεῖα λέγουσιν οἱ λέγοντες εἰς ἃ διαιρεῖται τὰ σώματα ἔσχατα . . . παραπλησίως δὲ καὶ τὰ τῶν διαγραμμάτων στοιχεῖα λέγεται καὶ ὁλως τὰ τῶν ἀποδείξεων· αἱ γὰρ πρῶται ἀποδείξεις καὶ ἐν πλείοσι ἀποδείξεσιν ἐννπάρχουσαι, αὗται στοιχεῖα τῶν ἀποδείξεων λέγονται. Cf. 998 a, 25. Menaechmus ap. Procl., *Eucl.*, I., p. 72, τὸ στοιχείον λέγεται διχῶς . . . τὸ κατασκευάζον ἐστὶ τοῦ κατασκευαζομένου στοιχείον, ὡς τὸ πρῶτον παρ' Εὐκλείδῃ τοῦ δευτέρου . . . ἄλλως δὲ . . . εἰς ὃ ἀπλούστερον ὑπάρχον διαιρεῖται τὸ σύνθετον . . . ὥσπερ τὰ αἰτήματα στοιχεῖα τῶν θεωρημάτων.

² On *Anal. Post.* I., 12 (p. 26, 23, Wallies), ἀναλύειν δὲ λέγω νῦν τὸ τεθέντος τινὸς ἀληθοῦς συμπεράσματος τὰς προτάσεις ἐξευρίσκειν δι' ὧν συνήχθη.

inscribed in the given circle, and then consider what properties his rectangle must have. Those properties are 'elements' in the solution. Thus he takes the construction to pieces. The opposite process is *synthesis*, 'putting together' this element and others in the proper deductive order. So Aristotle says that one may 'analyse a diagram and not be able to put it together again'.¹ Each step in the demonstration is a component 'contained in' the complete *diagramma* (diagram, construction, proof).

Pappus (VII., Introd.) gives a clear account of Analysis and Synthesis, which has been lamentably misunderstood:

'The *Treasury of Analysis* is a collection of material specially provided for those who, after doing the ordinary elements, wish to acquire, in dealing with lines (as distinct from problems in sciences other than geometry), a power of discovering the solutions of problems proposed to them. . . .

'Analysis is the procedure which starts from the desired conclusion, taken as agreed, through the *succession of sequent steps* (διὰ τῶν ἐξῆς ἀκολουθῶν—steps that in Analysis are traversed upwards, from each proposition to a prior proposition implied in it) to something agreed upon in Synthesis (some proposition previously proved and now admitted). For in Analysis we suppose (ὑποθέμενοι) the desired result to be already accomplished, and look for that (prior proposition) from which it results, and then again for the prior proposition leading to that, until, by tracing our steps backwards in this way, we meet with something already known or holding the rank of a first principle. Such a method we call 'Analysis' as being a 'solution backwards' (ἀνὰ πάλιν λύσιν).

'In Synthesis, on the other hand, reversing the process, we take as already done the last step reached in the Analysis; the steps that followed one another in the former (upward) process (τὰ ἐπόμενα ἐκεῖ) we here put into their natural (logical) order as leading on one to another (downwards), and put them together one after another; so finally we arrive at the establishment of the desired result. This we call Synthesis.'

Analysis, he continues, is either (a) *theoretical* (to prove a theorem) or (b) *problematical* (to solve a problem of construction). '(a) In the *theoretical* kind we assume the conclusion sought as existent and true; and then, through the sequent steps, taken as true and as hypothetically existing (ὡς ἀληθῶν καὶ ὡς ἔστι καθ' ὑπόθεσιν—these assumptions of existence are as yet unproved hypotheses awaiting confirmation in the Synthesis), advance (upwards) as far as something admitted (some proposition, true or false, admitted to be implied, as a necessary premiss or 'element', in the conclusion we started from). Then, if (1) that admitted thing is true, the con-

¹ Top., 175, a, 27, συμβαίνει δέ ποτε καθάπερ ἐν τοῖς διαγράμμασιν· καὶ γὰρ ἐκεῖ ἀναλύσαντες ἐνίοτε συνθεῖναι πάλιν ἄδυνατοῦμεν. Even in so early a proposition as *Eucl.*, I., 32, a large number of 'elements' are involved, and it is a nice question how many should figure in the demonstration.

clusion sought will be true also, and the demonstration will correspond, in the reverse order, to the Analysis (the Synthesis traverses the same series of steps, but in deductive order); but if (2) we come upon something admitted that is false, the conclusion sought will also be false. (b) In the *problematical* kind, we assume the (construction) propounded as if it were known; and next advance (upwards) through the sequent steps, taken as true, as far as something admitted (a construction, possible or impossible, admitted to be a necessary element in the desired construction). Then if (1) the admitted thing is possible and obtainable—'given', as the mathematicians say—the construction propounded will be possible too, and once more the demonstration will correspond, in the reverse order, to the Analysis; but if (2) we come upon something admitted that is impossible, the problem also will be impossible'.¹

It is quite possible to accept the statement that Plato 'discovered' the method of Analysis, in the same sense as Aristotle discovered the syllogism; that is to say, he was the first to reflect upon the process of thought involved and to describe it in contrast with the process of Synthesis. And it is certain that in his account of the dialectical ascent Plato is describing the upward movement of thought which has been illustrated from geometrical analysis. Since he assigns the mental experience called *noesis* to the corresponding section of the Line, it seems justifiable to say that the intuition used in this upward

¹ I gather from Sir T. Heath's discussion of this passage (*Thirteen Books of Euclid*, i., 138) that modern historians of mathematics—'careful studies' by Hankel, Duhamel, and Zeuthen, and others by Offerdinger and Cantor are cited—have made nonsense of much of it by misunderstanding the phrase 'the succession of sequent steps' (τῶν ἐξῆς ἀκολουθῶν) as meaning logical 'consequences', as if it were τὰ συμβαίνοντα. Some may have been misled by Gerhardt (Pappus, vii., viii., Halle, 1871), who renders it 'Folgerungen'. They have then been at great pains to show how the premisses of a demonstration can be the consequences of the conclusion. The whole is clear when we see—what Pappus says—that the same sequence of steps is followed in both processes—upwards in Analysis, from the consequence to premisses implied in that consequence, and downwards in Synthesis, when the steps are reversed to frame the theorem or demonstrate the construction 'in the natural (logical) order'. You cannot follow the same series of steps first one way, then the opposite way, and arrive at logical consequences in both directions. And Pappus never said you could. He added ἐξῆς to indicate that the steps 'follow in succession' but are not, as ἀκολουθα alone would suggest, logically 'consequent' in the upward direction. In the definitions of Analysis and Synthesis interpolated in Euclid XIII. (Heath, *ibid.*, I., 138) the phrase διὰ τῶν ἀκολουθῶν is used in the same way: 'Analysis is a taking of the thing sought as admitted (and the passage) through the sequent steps to some admitted truth'. Here again it is translated by Heiberg (Teubner edit., III., 365) 'per consequentias', and by Heath 'through its consequences'. These definitions may have been copied, with abbreviation, from Pappus' statement.

spring of thought is one of the meanings of *noesis*. I cannot point to a passage where the word must have this sense to the exclusion of its more general uses, but that is because Plato constantly substitutes the metaphors of 'grasping' (*ἄσθαι*) and 'seeing' (*κατιδεῖν*, *θεᾶσθαι*, etc.), for *νοεῖν* in this sense. The important thing is not the name, but the fact that the intuitive movement is unmistakably recognised. For similar reasons I infer that the deductive reasoning characteristic of mathematical procedure is one of the meanings of *dianoia*. *Noesis* is an immediate act of vision; the ascent is made by one or more sudden leaps. *Dianoia*, on the other hand, is a continuous process; the mind 'journeys' (*πορευομένη*, 510B) along a path of discourse which the reasoner 'traverses' (*διεξιόντες τὰ λοιπά*, 510D) from beginning to end.

The next point to be noted is that the dialectical method includes also a downward process following after the ascent to the principle. The description continues: 'having grasped the first principle, turning back again and holding to that which depends on it, then and only then discourse may descend to a conclusion, making no use at all of any sensible thing, but only of Ideas (passing) through Ideas to Ideas, and end with Ideas'. The whole of this first account of dialectic is closely compressed and framed in terms chosen to fit the dialectical treatment either of mathematics or of the moral Ideas. As we shall see later, where the two fields are separately considered, the procedure is not altogether the same in both. But both movements of thought are employed in both fields of objects. Neither the analytical power of *noesis* nor the process of deductive reasoning is limited to mathematical objects; and 'hypotheses' (though of a different sort) are used in the effort to define moral Ideas and are subjected to criticism.

Even in mathematics we can conceive the geometer as dispensing with diagrams, visible or imagined, and contemplating the Idea of the triangle—the essential nature of all triangles (of which in fact no picture can be made without adding irrelevant properties, 'equilateral', 'scalene', or 'isosceles'). This nature is, I believe, conceived by Plato and Aristotle as containing implicit in itself all the 'essential properties' that can be drawn out and demonstrated in the indefinite chain of *theorems* about the triangle. The *problem* was something to be done; its solution was the fruit of action (*πράττειν*)¹ which

¹ Proclus, *Eucl.*, I, p. 77, 12. καθάπερ γὰρ αἱ ποιητικαὶ τῶν ἐπιστημῶν θεωρίας μετέχουσι, κατὰ τὰ αὐτὰ δὴ καὶ αἱ θεωρητικαὶ τὰ προβλήματα ταῖς ποιήσεσιν ἀνάλογον προσειλήφασι. *Rep.*, 527A, λέγουσι μὲν πού μάλ᾽ ἀγελοῖως

brought out into actual existence the elementary constructions divined by intuition as latent in the given figure, and exhibited them in a completed diagram. The 'theorem' is the fruit of contemplation (*θεωρεῖν*), which penetrates by intuition to the latent properties 'contained in' the essence. The 'demonstration' (*ἀποδείξις*) is the exhibition of these properties as belonging to the essence, in the form of explicit statements set out in logical sequence, deductive or syllogistic.

Further, not only mathematical Ideas like the Triangle, but moral (and other) Ideas are genera, which can be conceived as containing, potentially latent within them, the species.¹ These species are made explicit in the tabular Division (*διαίρεσις*), aiming at a definition that will isolate the lowest species from every other species. When dialectical method is applied to the definition of an Idea, the ascent is made by the 'synoptic' act of divining by intuition the unity pervading a manifold 'gathered together' (*συναγωγή*). This unity becomes the 'genus' that must stand at the head of the table. The downward process is 'Division', discerning 'differences' within this unity and arranging them in proper logical sequence.² An analogy between these upward and downward movements in obtaining definitions and the upward and downward movements of the geometer's analysis and synthesis in obtaining constructions was perceived by Proclus. Hence the passage above quoted (p. 43) goes on to connect the Platonic Division of genus into species with the solution of a problem by construction:

'The second is the method of Division, which divides into its parts (species) the genus proposed for consideration (as a result of previous *συναγωγή*), and gives a starting-point for the demonstration by means of the elimination of the other elements in the construction of what is proposed, which method also Plato extolled as being of assistance in *all sciences*.'

τε καὶ ἀναγκαίως· ὥς γὰρ πρᾶττοντές τε καὶ πράξεως ἕνεκα πάντας τοὺς λόγους ποιοῦμενοι λέγουσι τετραγωνίζειν, κτλ. There are traces of an Academic controversy as to the nature and possibility of 'operations' in mathematics, whose objects are eternal; but this question cannot be pursued here.

¹ Thus at *Timaeus*, 30C, the Idea of Animal embraces within itself (*ἐν ἑαυτῷ περιλαβὸν ἔχει*), all the 'intelligible animals' falling under the four species of 39E, *ἐνούσας ἰδέας τῷ ὃ ἔστι ζῶον*.

² In the *Sophist* and *Politicus* many rules are laid down for observance in the downward process of Division; but no rules are, or can be, given for *συναγωγή*. *Σύνοψις* is an act, not a methodical procedure. It is a case of hit or miss, and you cannot tell which, till you have deduced the consequences.

To Proclus the dialectician's contemplation of the genus proposed for division seemed analogous to the geometer's contemplation of his given figure. The final definition of the species sets out in explicit form (λόγος) the elements (differences) contained in the essence defined, as the geometer's completed diagram exhibits the elements in the demonstration. Each, in reaching his results, eliminates, step by step, irrelevant elements: the dialectician, as he selects each *differentia*, rejects its alternative; the geometer retains only the elements that will figure in his demonstration and rejects others that occur to him but are found not to lead to his conclusion.¹

(d) *States of mind*.—It remains to note another use of the words *noesis* (or *nous*) and *dianoia*. Glaucon says he understands the account of dialectic as meaning that 'the field of the real and intelligible as studied by the science (ἐπιστήμη) of dialectic has a clearer truth (σαφέστερον) than what is studied by the mathematical 'arts' as they are called, whose hypotheses are taken as starting-points'; and that 'although students are compelled in studying these arts to use abstract reasoning (διανοία) and not the senses, yet, because they proceed from hypotheses without going up to a first principle, they do not, you think, come to have *nous* (νοῦν ἵσχειν), albeit their objects can be objects of *nous* in connection with a first principle (καίτοι νοητῶν ὄντων μετὰ ἀρχῆς). I understand you to describe the state of mind (ἔξις) of geometers and other mathematicians as not *nous* but *dianoia*, regarding *dianoia* as something between belief and *nous*' (511CD). Later, the mathematician is said to live in a sort of dream, not seeing reality with waking vision (533B); his so-called knowledge is not science (ἐπιστήμη) but only *dianoia* (533D).

The contrast between the two states of mind may be illustrated from the *Meno*. The slave who is there questioned² at first produces false beliefs about the solution of the problem, then true beliefs; but these will become knowledge only when he has been taken through the proof repeatedly and grasped its logical necessity 'by reflection on the reason' (αἰτίας λογισμῷ). The mathematician and his pupil in the *Republic* have done all this, but now Plato will not call their state of mind 'scientific

¹ Elsewhere (p. 57, 22) Proclus mentions 'Division of species from genera' as a method also used by geometry in obtaining definitions which figure among its first premisses.

² Referring to this experiment at *Phaedo*, 73B, Plato uses the phrase ἐάν τις ἐπὶ τὰ διαγράμματα ἄγῃ. The slave is confronted with a given figure and a problem of construction.

knowledge' or *nous*, because the reason they have reflected upon is an assumption that is not either demonstrated or seen to be indemonstrable. Their intellectual understanding of a coherent, but isolated, piece of deductive reasoning is *dianoia*; they will not 'come to have *nous*' or genuine knowledge until they have gone up to intuitive apprehension of the indemonstrable principle of their whole science. By *nous*, here and later, Plato means the perfectly clear vision, or unshakable grasp, of the completed structure of mathematical truth, through all the ramifications so far discovered, as illuminated from above, by the light of the ultimate premiss, intuitively seen and such that it cannot be questioned. So long as bits of the structure are allowed to depend on questionable hypotheses, there will be an atmosphere of dimness and uncertainty in the state of mind. The structure might fall, should the premisses prove to be unwarranted; and anyhow the truth of the assumptions is not either proved or certainly 'clear to anyone'. The intuition of the ultimate premiss will dispel this mist of uncertainty and irradiate the whole science.¹ The mathematician will then 'come to have *nous*', the state of mind compared to vision, no longer in a dream, but in the light of day.

Conclusions.—I conclude that the terms *noesis* and *dianoia*, where a distinction is observed between them, are used in several senses, just as the curious name *εἰκασία* for the fourth 'mental experience' includes 'perception of images' and 'guess-work' (the prisoners in the Cave *watch* the sequence of the passing shadows, and *divine* which will come next, 516 CD)². *Noesis* means: (A) generally, as opposed to *αἴσθησις* or *δόξα*, the cognition of any objects or truths in the intelligible realm; (B) as opposed to *dianoia*, (1) the intuitive act of apprehending, by an upward leap, an Idea or a prior truth implicit in a conclusion (for this sense *ἄφασθαι*, *κατιδεῖν*, *θεᾶσθαι*, etc., are usually substituted for *νοεῖν*); (2) the state of mind (properly called *νοῦν ἔχειν* or *ἐπιστήμη*) of one who sees with perfect clearness a completed structure of truth illuminated by the unquestionable principle. *Dianoia* means: (A) generally, 'abstract thinking' (with *νόησις* and *λογισμός* as synonyms); (B) as opposed to *noesis*, (1) the downward movement of understanding following a deductive

¹ Cf. Proclus, *Eucl.* I., p. 27, 13, *νοῦ καταλαμβάνοντος ἄνωθεν τὴν ἐπιστήμην*.

² A knowledge of nature consisting of empirical observations and predictions based on them, is to Plato not 'science' or even 'art', but *ἐμπειρία* 'merely preserving a memory of what usually happens' (*Gorg.*, 501A) without being able to give any account of the reason, and involving a naïve 'trust' (*πίστις*) in the reality of the appearances it records.

argument from premiss to conclusion ; (2) the uncertain state of mind of one whose so-called 'knowledge' consists only of isolated chains of reasoning depending on an assumption either not demonstrated or not seen to be indemonstrable. There are many degrees of dimness in this twilight ; but, if perfect enlightenment has never been attained, all human knowledge moves in this region of dream. All our own mathematical knowledge still lies somewhere in the vast range between a child's 'true belief' that two and two make four and the perfect comprehension, not yet (I gather) certainly achieved by any human intellect, of all the logical concepts and propositions implied in $2 + 2 = 4$.

(To be concluded.)

IV.—THE VALUE OF FORMAL LOGIC.

BY F. C. S. SCHILLER.

THE Symposium on Logic, in last year's Supplementary Volume of the Aristotelian Society, *Indeterminism, Formalism, and Value*, proved at any rate that Formal Logic dies hard. It still commands the services of numbers of 'last ditchers' who are reluctant to abate one jot or tittle of its ancient claims, who refuse to entertain any new ideas, and who fight ferociously against any concession to criticisms of which they can hardly on their own principles deny the relevance, lest they should lead to a reconstruction of its basic assumptions.¹ Unfortunately the conditions of the Symposium did not render it easy to bring out the points at issue fully, while the instructive discussion at the Joint Meeting of the Aristotelian Society and the Mind Association could not be reported at all. I have been moved therefore to write this article in the hope of promoting a really thorough discussion of the principles which underlie the debatable subject commonly called Logic. The questions I propose to raise are : I. What is meant by Formal Logic ? II. Is current Formal Logic a pure, coherent and consistent body of doctrines ? III. Can it cover the whole field of Logic ? IV. Can any other treatment of logical topics take its place and give rise to a more valuable and useful science ?

I.

It will be expedient, at the outset, to take Formal Logic in a very wide sense, because only so shall we be able to get clear as to the essence of Formalism and to include in our discussion all its manifestations. I propose therefore to make its attitude

¹ These remarks are not applicable to two of the participants in the Symposium, Dr. A. C. Ewing and Mr. Mace, though neither of them was willing to abandon Formalism altogether. But Dr. Ewing made some novel and interesting suggestions which one would be glad to see worked out, and Mr. Mace made the generous offer which is discussed in Part IV. of this article.

towards *Meaning* the differentia of Formalism, and to call any logic Formal which adopts one of two conceptions of Meaning. Now, as either of these two conceptions may be taken as primary, this choice will determine the character of the ensuing logic. It should also be premised that whichever is chosen the other will have to be derived and accounted for, and that we should be prepared to find oscillations and compromises between these two senses, which are possible, and indeed common. But though they exist, they should be branded as illogical and need not be examined in detail.

The first, and historically more prevalent, conception takes Meaning as inherent in words and the structure of language, and regards the user of language as bound by the 'correct' usage of words. For it words determine thought, and *their* meaning controls the thinker. For the second view, on the other hand, man is the maker of language and more or less its master. It therefore takes the meaning actually intended by the user of language on the occasions when he endeavours to express his meaning as the primary and proper source of meaning, and regards the meaning of words as a secondary phenomenon, acquired in usage. Accordingly the first sense may be called *verbal*, the second *personal*, meaning.

A little reflection will further show that the choice between these two senses of meaning is a momentous one and leads to important consequences. If we choose the former, we shall naturally hold that meanings are expressed in verbal forms called 'propositions', which have intrinsic meaning, whether any one asserts them or not, and are capable of being true or false, whether any one knows it or not. If we choose the latter, we shall insist that there can be no meaning without some one to mean it, and (for all social purposes) without others to understand it, and so, that self-subsistent, autonomous meanings are a myth. Or, more strictly, they are inaccurate and elliptical expressions which omit and conceal the personal context in which all meanings arise. To mark our reprobation of this fiction this second logic will substitute the *judgment* for the 'proposition', and will take it quite strictly, as a personal decision of a question or a problem, adopted by its maker in a situation that has stimulated him to reflection, and representing the *best* answer to his question, the best solution of his problem, which he thought he could formulate when he made it. In cases when he judges, not merely for his own satisfaction, but for export, the making of a judgment includes *also* a recommendation to others to accept it as the best solution, if and when *they* encounter the same pro-

blem. Evidently under these circumstances the exact verbal form in which the judgment was expressed, the 'proposition', is merely the memorial of a defunct judgment, and is of secondary importance. It may be that unusual and 'incorrect' terms have been used, and that, nevertheless, the meaning intended has been successfully conveyed and accepted as 'true'. All that in such a case a critic can object is that *other* words would have served the judger's purpose, and have conveyed his meaning, *better*. This may or may not be true; for it should be remembered that in a markedly 'new' situation old (verbal) meanings will always be strained to do justice to its features. At any rate it will be reprehensible to dignify with the title of 'judgment' an assertion torn from its living context in the thought of its maker: such treatment is essentially *garbling*, and strictly reduces the assertion to a mere 'proposition'. Now a proposition cannot be admitted to have *personal* meaning, except potentially: until some one picks it up and uses it, its meaning remains *verbal* and conjectural. Moreover, its potential meanings are infinite; they are the sum of *all* the (personal) meanings that the words of the proposition can bear and convey when used. Hence all propositions (and *a fortiori* terms) are inherently capable of an indefinite *plurality* of meanings, and so are 'ambiguous' (in the traditional sense). But *this* ambiguity is *only* verbal; it may disappear so soon as the proposition is used, and need create no obstacle to understanding: so an 'ambiguous' proposition does *not* mean the same as an 'ambiguous' judgment, and need not generate it. It is important therefore to *distinguish* the potential ambiguity of words, that is their *plurality of senses*, from the actual ambiguity which creates uncertainty in use and in an actual context, and it is preferable to restrict the name 'ambiguity' to the latter. Here then is a second big difference between the two conceptions of Logic. It should also be observed that it would be an enormous simplification of Logic to disallow and get rid of the logics which talk about 'judgments' without reference to their personal context, and so really treat them as 'propositions'.

But the purer forms of Formal Logic do not fall into this confusion. They talk about 'propositions', and really mean that propositions are the proper vehicles of truth and falsity and the proper subject matter of 'logic' as they conceive it. So there is no difficulty in defining Formal Logic. Formal Logic, or (more briefly) Formalism, properly defines any logic which consciously and consistently takes meaning as verbal, and abstracts from (or at any rate ignores) the personal meaning we have

explained, and therefore concerns itself with 'propositions' only. Of course, from the standpoint of a logic of personal meaning such a logic must be described as *meaningless*; but this is only a way of challenging its initial assumption and of raising the question of which sense of meaning is to be chosen. When meaning is taken formally, strictly and consistently, all references to 'judgments', and all the problems to which personal meaning gives rise, should be excluded as *extralogical*.

Such rigour clearly involves a serious impoverishment of Formalism. Nevertheless it is undeniable that within its chosen limits it has been able to erect an impressive and imposing structure. Greek logic, having for its end the very practical purpose of regulating forensic procedure and political debate, was made by Aristotle into a superb organon for these and similar purposes. He analysed also in masterly fashion the more obvious ambiguities of language, the confusions and fallacies they might occasion in thought, and the grammatical forms he called 'categories'. The technique of 'proof' or 'demonstration' was developed into a subtle fusion of coercion and cajolery, and the philosophic grounds of the whole structure in the notions of self-evidence and necessity were at least plausible. Thus Aristotle created an excellent word-game, as stimulating as cross-word puzzles and easier than mathematics. It sufficed for the needs of those who were concerned merely to manipulate language and the accepted meanings of words. For several thousand years Aristotelian logic sufficed for man's intellectual needs. But, alas, *assensum constringit non res*, as appeared when the centre of man's interest shifted from the persuasion or coercion of his fellows to the investigation of nature. Greek logic failed signally to control and guide the researches of the sciences. It failed to understand even mathematics, though it converted Euclid. It proved unable to excogitate and sanction the methods of modern science, and even to recognise them. Its familiarity with the notion of absolute certainty was a positive bar to its recognition of the cumulative probabilities yielded by the sciences. It was conversant with 'validity' but not with 'value', and tried hard to shut its eyes to the constant occurrence of 'invalid' reasoning. It knew how to build on an unshaken and unchanging basis of 'necessary' truth, but not how to adjust itself to a pursuit of the absolute by way of an unending growth of knowledge.

Thus there arose, as Prof. Dewey has pointed out so forcibly, a great, glaring and growing contrast between the theory of Formalism and the practice of the sciences, between the precepts of Logic as to how men *ought* to acquire knowledge and the methods

by which they actually succeeded in so doing. For centuries this discrepancy did not seem to trouble the logicians; its extent and poignancy seemed powerless to move them to reconsider their assumptions or to diminish their complacency.

When, tardily, they felt that something had to be done about it, they took refuge under the ægis of mathematics, which they proceeded to laud to the skies as the science *par excellence*, on which the rest were to be modelled. Unfortunately, they had not at that time adequately analysed out the logical character of mathematics; in particular they had not understood the relations of the 'ideal' entities of mathematics to reality and to experience. They had blindly followed Euclid, and Euclid's philosophy of mathematics was just Platonism. So they were content to accept from Plato and from Kant the belief that mathematics were '*a priori*'; and, like Kant, they too failed to distinguish between the problems of *pure* and of *applied* mathematics, between the 'space' of geometry and that of physics. Even when the geometers had forced them to admit that they were entitled to construct a variety of postulate-systems on which geometries could be erected, even when the physicists treated it as an open question, to be decided by empirical evidence, *which* of these systems was to be adopted as most convenient for the purpose of calculating physical events, they were unwilling to learn that the 'apriority' of a postulate-system had nothing whatever to do with its 'truth' (or value), simply because anything might be postulated *a priori*, while the actual value of a set of postulates always in the end depended on its usefulness in predicting and controlling the behaviour of empirical reality.

Thus the appeal of Formalism to mathematics for support is rapidly failing. It had taken refuge with mathematics because it admired their 'exactness', and thought that in them it could find realised its 'ideals' of 'proof' and 'necessary truth'. But modern mathematics are busily disclaiming the excellences ascribed to them. Their 'exactness' pertains, not to their predictions about reality, but to purely hypothetical creatures of the mathematical imagination. Their 'proofs' are relative to the assumptions of a postulate-system which has constantly to justify itself by its application to experience, and their 'necessary truth' is only an ordinary logical deduction from the same assumptions. Thus while it is true, on the one hand, that 'pure' mathematical truth is becoming more and more ideal, *i.e.*, more of a product of free postulation, yet on the other side, which concerns its application to reality, it is becoming more and more empirical. Is it not

high time that Formalism should face the alternative to its interpretation of mathematics, viz. that while the character of a postulate-system may be entirely ideal and arbitrary, its value may depend entirely on experience, and its 'truth' may mean nothing but its verification and usefulness?

II.

These considerations do not augur very favourably for the claims of Formalism to have constructed a single, coherent and complete edifice out of the miscellaneous materials it has picked up on the field of Logic. Indeed it is all too plain that its actual structure is composite, and in many ways incongruous. It seems to be composed of a number of discordant ingredients, viz. (I) the old Aristotelian formal logic, (II) the modern symbolic logic which claims to correct it, (III) the 'inductive' logic, which claims to represent the procedures of the sciences, (IV) the mathematical theory of probability, which claims to account for probable reasonings. The Formal Logic of the textbooks is usually an amalgam of these four in various proportions, and looks suspiciously like a logical monstrosity.

(I) Much the most important of these four ingredients is still the old Aristotelian Formal Logic. For it has devised the assumptions on which the other branches of Formalism have built, and defined its fundamental conceptions. Also it alone has attempted an analysis of language, and so has laid down the rules for the traditional word-game.

Unfortunately, however, it has not done its job thoroughly.

(1) It has not completely analysed out the logical implications of language, and has done next to nothing with the psychological conditions of thinking. Nor has it stated in full the rules and regulations of its word-game. It fails to mention some very essential assumptions and postulates, and analyses the basic conceptions of Formalism very imperfectly.

For example, it does not explicitly mention the postulate of the *Fixity of Terms*, which is essential to its manipulations. For unless it is entitled to argue from the meaning of a term in its occurrence or use in one context to its meaning in another, there is no arguing from case to case at all. It must assume therefore that cases of identity can occur. If A^1 cannot be identified with A^2 with absolute security on all occasions, formal inference becomes impossible. Accordingly there is proclaimed as a primary law of thought a *Law of Identity*, to guarantee this transition and to assure the formal logician that he can safely identify A^1 and A^2 .

This procedure, however, is open to numerous objections. (a) It is left (intentionally ?) obscure what is meant by a 'law' of thought. Is a 'law' of thought a uniformity, like a natural law, a precept or canon for ensuring profitable operation, or a political command enforceable with legal penalties? Apparently the Law of Identity has all three faces, one more than Janus, and keeps revolving them so fast that it is hard to identify it with any of them.

(b) Its official formula seems innocent enough. It is merely A is A . But this is a tautology, and tautologies are meaningless. Presumably therefore it does not mean what it says.

(c) This suspicion is soon confirmed, when we observe its actual use. As actually used, it is by no means a tautology. For it is used to guarantee the transition from what is taken to be one case of A to another. Hence it should be formulated ' A is A '. This is so far from being a tautology that we are disposed rather to reject it as a monstrous assumption. For surely it cannot be taken for granted that anything any one chooses to call ' A is A '? That would make error an impossibility. No doubt, if Logic is merely a word-game, it can enact that (or any other) rule. But if it is to describe and guide serious research, it cannot be allowed to make such fantastic assumptions.

Furthermore (d), when we try to use the Law of Identity in this fictitious manner, we encounter a peculiar difficulty, due to the psychological nature of human thinking. When rational and sane, we form judgments only to embody or convey information, and not to restate what is already known. Hence when we judge that S is P we believe that the conjunction of S with P is a *novelty*, to some or all of those concerned with the judgment. But, if so, it necessarily *alters* the (verbal) meaning of the terms it uses. Henceforth, and in consequence of the judgment, S becomes an S -of-which- P -may-be-predicated, and P becomes a P -which-may-be-predicated-of- S . In principle therefore the making of a judgment always alters or develops the meaning of its terms. But though Logic is thereby enabled to take cognizance of the growth of Knowledge this plainly refutes the postulate of the Fixity of Terms. It is revealed as a *fiction*, which may, of course, be retained as a rule in a word-game, but loses all claim to describe the process of actual thought.

Except (e) on *one* condition, *viz.* that we interpret the situation as meaning that though A^1 and A^2 are different, and though terms *always* change and develop their meanings in use, as our knowledge grows, yet, for the purpose of any particular argument these differences *may be irrelevant and negligible*. If so, the proper

interpretation of the 'law of identity' will be that it is the postulate of the *irrelevance of the differences* between two cases of A. It will then mean that A^1 and A^2 may *both* be treated as A, when they are both *truly* cases of A, and when the differences between them are irrelevant.

But (f) of this fact we get no *formal* assurance. When A^1 and A^2 may be identified as 'cases of A' is left to our judgment to discover. The identification has always to be risked. We find out by trial, and by observing the actual consequences of taking A^1 and A^2 as 'the same'. Thus there is imposed upon every logic which aspires to be *more* than an artificial word-game, a far-reaching and unavoidable dependence on experience. However precisely we formulate our terms, however stoutly we assert their 'identity', experience will decide in each case whether we were *right* in identifying them. In the sequel it will be found that this difficulty completely vitiates the claim of the syllogism to formal 'validity', and renders the conclusion of even the most 'demonstrative' proof subject to empirical verification.

(2) Closely akin to the charge that Formalism has failed to state its basic assumptions is that it has failed to analyse sufficiently its fundamental conceptions. Under this head we may consider its notions of 'form', 'validity' and 'necessity', and discuss the value of the abstractions from the actual procedure of thinking which it perpetrates.

(a) The conception of 'form', though it has figured in philosophic discussion ever since a couple of Greek noblemen had the brilliant idea of appropriating it from the banausic arts of the potter and the carpenter, has remained singularly elusive. In spite of Plato and of Aristotle it has never been shown that 'pure form without matter' could really exist, any more than a potter could make a vessel without clay. Consequently it seems to be incumbent on those who conceive logic as a science of pure form to show that such a science is possible. *Prima facie* the abstraction of the form from the matter of reasoning seems difficult, violent, and contrary to nature; it needs considerable justification. Moreover the believers in it should not content themselves merely with *examples* of it; they should produce something like a rational *definition* of it, and also (if possible) some evidence that the forms they recognise are something more than *forms of language*.

(b) The notion of 'formal validity', though it originated in Aristotelian logic, has spread far beyond its borders, and dominates the whole field of Formal Logic. It is upheld fanatically, for a reason that is never stated. It is valued, like other forms of a

priori 'knowledge', as an instrument of power. It is taken to guarantee with absolute assurance that, come what may and independently of experience, a human prediction will come true. The conclusion of a formally valid syllogism from true premisses (meaning, as 'true' as contemporary knowledge and psychological intuition can make them) cannot be falsified by the event; we desire to believe that it stands absolutely firm against all the shocks of change. Clearly upon this rock all the dogmas may build their churches!

Consequently they are all terribly upset when it appears that *no* form will guarantee any absolute validity, for a purely technical reason inherent in the use of *any* form, because the *identity* of the terms (or the relations) which knit the argument together cannot be guaranteed. It is always open to challenge, and may always break down, when we try to *use* the form. We saw above ((1)f) that the logical nexus in inference was created by the *identity* of two 'cases of A' in different contexts, and that this identity was always questionable, because it might be contended that in *this* case the differences between the cases were *not* irrelevant and their identity was not real but only verbal. That is, although A^1 and A^2 were both *called* 'cases of A', this might be a mistake, because they did not function as such. Now wherever this happens the verbal identity of A in the middle term of a syllogism (or in the relation which serves as a logical nexus) is *not* a sufficient guarantee of the inference which tries to proceed from A^1 to A^2 . Yet 'formal validity' offers nothing more than just such a verbal identity of the 'A'. The *actual value* of the argument, therefore, cannot be determined by it. It will be determined empirically, by the coming true in fact of the conclusion deduced from the *hypothesis* that A *was* a real identity, and that the differences between its 'cases' *were* irrelevant. But this is proof by *verification*, and verification is *not* a 'valid' process.

(c) The part played by the notion of 'necessity' in logic is perhaps the most difficult part of a difficult subject, largely because the notion itself has not been completely analysed. Its difficulties, however, are by no means wholly due to the many and intricate ambiguities of the term 'necessity', or even to the habitual neglect of logicians to distinguish *logical* necessity properly from *psychological*, and logical *necessity* from logical *obligation*. These confusions have no doubt contributed to the tangle, but I must own that I have myself felt more misgivings in discarding the phraseology of logical 'necessity' than in attacking any other part of the Formalist outfit, and have only gradually

come to see how it may be superseded by a better and more natural account of human thinking.

But before I expound how it may be possible to dispense completely with the notion of necessity in the analysis of reasoning, we had better examine Mr. Mace's gallant attempt, in his Symposium paper,¹ to analyse 'logical necessity'. He sees the difficulty of assigning a meaning to the phrase. He first tells us what it is *not*, but offers no positive definition. Then he thinks that it is connected with two logical relations. The first of these is to be extracted from the phrase 'it follows'. The second somehow inheres, or appears, in probable reasoning. Both, however, determine thought, though he is "not perfectly clear as to the nature of this determination", which in the case of 'demonstration' may involve 'causal necessity'.

Upon this I would remark that 'causal necessity' is a very complex as well as a very contentious notion. It may mean many things, in many contexts, from metaphysics down; for philosophers are not agreed about what they should mean by 'cause', nor about the uses to which the various senses of 'cause' may be put. Under these circumstances to appeal to causal necessity is merely to invoke confusion, and is very unlikely to throw light on 'logical' necessity.

Secondly, the phrase 'it follows' appears to be fatally ambiguous. As Mr. Mace takes it, in a Formalist way, as describing a 'logical relation', it is plainly a metaphor. It may be nothing more. At any rate what more it is remains a mystery in Mr. Mace's account.

So it may be well to try a simple and more literal interpretation. To unbiassed observation of human thinking it will not seem incredible that 'it follows' should refer to the observable sequences in our trains of thought. Such sequences are frequent in the trains of thought in which all reasoning proceeds. Moreover, we may suggest that a 'sequence' becomes a 'consequence' if it can be *shared*, that is, if we can get *others* to 'follow' our lines of thought. This indicates how a line of thought may cease to be 'subjective' and 'psychological', and become 'logical' and (in a way) 'objective'.

Closer inspection further shows that usually these sequences are not random and fortuitous, nor lacking in intelligible and predictable connexions: for they are knit together *psychologically*, by the desires, purposes, and satisfactions which actuate our thinking. True, these connexions are not 'causal' (in the

¹ *Loc. cit.*, pp. 27-42.

sense in which 'causal' refers to 'mechanical' causation), but *teleological*; but why must Logic be pledged to a 'mechanical' interpretation of everything? If Logic is willing to recognise our actual thinking at all, why should it not declare in such a case that it observes a personal thinker in pursuit of some desired end? Why should he be misrepresented as driven along by any irresistible compulsion of 'logical necessity'?

The traditional treatment of 'logical necessity' is so unnatural, and yields so little, that we had better revert to the distinctions we mentioned at the outset and endeavour to elucidate them. Let us begin by recognising a psychological *feeling of necessity* or compulsion, a feeling of 'must'. This is the opposite of the feeling of 'freedom' or feeling of 'can'. It attaches itself to mental processes, acts, objects and situations and renders them 'necessary' in ways which vary with the minds that feel it. Many therefore of these psychological 'necessities' are *not* logical, and it is very important that logical inferences should be considered on their merits, and apart from the question of whether or not they are accompanied by *feelings* of 'necessity'. The feeling of necessity is an independent variable which should not be made essential to reasoning.

We may next observe that many logical necessities are not *felt*. Indeed in our normal thinking we *never* feel them. Our thought flows equably along in its normal channels, until it arrives at its destination, and achieves its desired end. A feeling of necessity develops in it only when it encounters obstacles and attempts to interrupt it. Then only do we feel that we '*must*' go on and overcome our difficulties.

A further generation of 'necessities' occurs when we endeavour to impose our conclusions upon others by force, and set ourselves to bully rather than persuade them. We ourselves probably arrived at our conclusions easily, gaily, and without compulsion. But logical tradition and etiquette do not allow us to recommend them to others as good and attractive, as the valuable products of trains of thought which we have found practicable and delectable, and which they also could enter on with profit. The logical presumption is that no one can possibly *enjoy* thinking, or be induced to take a single step in it, unless he has to. So we conceal our satisfactions, and declare (falsely) 'All truth is compulsory: you *must* proceed from A to B and from B to C; you cannot *help* yourself.' It is strange how custom has blunted our perception of the bizarre absurdity of thus recommending truth!

Examination of the distinction between logical 'necessity' and logical 'obligation' will further foster the belief that both

these notions can easily and advantageously be discarded. At present they are frequently confused, and logicians pass from one to the other as if they meant the same thing. Yet logical 'obligation' clearly admits a freedom of choice, which 'necessity' precludes. 'I ought' implies 'I can', 'I must' leaves no alternative. To rest logical procedure upon 'obligation', therefore, is an improvement; it promotes reflection upon the important topic of alternatives, and explains the possibility of error, in a way logical 'necessity' forbids.

It may be argued further that all the logical 'necessities' are really cases of 'obligation'. They are really hypothetical, consequences of playing the logical game according to the rules. Having once bound ourselves by devising or accepting the rules, we have put ourselves under an obligation to observe them: thus logical necessity resolves itself into moral obligation, and ultimately rests on the moral duty of keeping one's promises. The 'necessity' of a syllogistic conclusion does not then, in ultimate analysis, differ from that of a checkmate in chess: we often fail to see this because the rules of chess are much more clearly stated and better understood than those of Formal Logic. The rules of Formal Logic, however, are largely rules of grammar and syntax, and conventions of language. If A is A, it *ought* not to be treated as not-A; this is how the 'law of identity' becomes a 'necessity of thought'.

We may conclude then that in ultimate analysis logical necessity simply describes the way in which, using the ordinary rules for manipulating language, we can deduce consequences, which meet with general acceptance, from our assumptions or hypotheses. Our conclusions are 'necessary' because they are essentially *dependent* on the premisses and the postulate-system from which they are drawn. But because our premisses are never 'absolutely' true and our rules involve fictions which may break down in actual cases, our conclusions are never absolutely assured, and still have to be verified in fact; but it is of great value to have anticipations and to face the future with reasoned expectations. If we are disappointed, we go back on our premisses and revise them; if we were *always* disappointed we might despair of reasoning, or might renounce the fundamental assumptions on which it had proceeded. But as yet we have not been driven to such extremities.

(d) It is somewhat surprising how callous Formal logicians have grown to the *enormity* of the abstractions on which Formalism rests. Without a scruple or a qualm they calmly abstract from the fact that men 'think' and 'reason', and do not even deign

to give any reason for their procedure. But why should the fact that we think and reason be thus dogmatically set aside? Why should all the features and functions of actual thinking be abstracted from, and their places be filled with outrageous and fantastic fictions? When Mr. Mace, who is far from being an extremist in his Formalism, confidently states that "the formal logician can ignore the fact that people think", that "they have rightly abstracted from psychological questions. It is not necessary even to inquire whether the formal properties in question do in fact determine thought", and that "it is evident at the outset that such principles do not concern the use of words", one can only gasp. Will he not, at least, divulge what *is* "the minimum of reference to the fact that people think" which is permissible in Formal Logic? Does he really believe that even if there were *no* thinking there would still be logic? Does he really mean that even though there *is* thinking, it is wholly irrelevant? that the psychic conditions of human thinking should have no bearing at all on the aims and methods of Logic? Surely Formalism should be required to give good and sufficient reasons before it is allowed to divorce logic from psychology, and to separate the theory of thinking so completely from its practice.

(3) It would not be wise to spend much time on the pretensions to 'rigour' which Formal Logic makes. For it is clear that they cannot be substantiated. The ideal of rigour is part of the inappropriate aping of mathematical procedure, which only leads away from study of the actual processes of human thinking. Its realisation is forbidden by the incurable (potential) ambiguity of all the instruments of expression, whether words or symbols (*cf.* Part I.). When it is realised further that formal validity is a mare's nest, logical necessity an illusion, and coercion a false ideal of thought, it should be clear that the formal claim to rigour had better be dropped.

(II) The dropping of untenable pretensions is not, however, the policy which has commended itself to the logicians who have elaborated the *symbolic* aspects of modern formalism. They have prided themselves rather on rendering it more rigorous and more consistently formal. I greatly regret that I cannot on this occasion discuss their labours on a scale commensurate with their own writings, but shall have to select for comment only a few very fundamental difficulties, which their treatment of Logic appears to involve.

(a) The first concerns their relation to Aristotelian Formal Logic. The symbolic logicians think that they have made an

important correction in it by pointing out that its inferences hold only within the relation of substance and attribute (or subject and predicate), and that there are many other relations between terms which justify valid inferences, and that therefore a more general logic of valid relations is needed. They believe further that the methods of their symbolism will include these inferences in Logic.

Upon this I would remark that their criticism seems valid—hypothetically. If there were valid forms, in the traditional sense, it would be mistaken to confine logical study of forms to the subject-predicate form. But, as we have seen, *no* forms can ever be rendered 'valid' simply as such (*cf.* Pt. II., 1 (*a-f*), 2 (*b*)); so it is difficult to see why the 'valid inferences' of symbolic logic should attain to greater rigour and coerciveness than those of the syllogism, or why their conclusions should be more frequently right in fact. If the 'ideal' of pure absolute formal validity is once given up because of the insuperable difficulties of securing absolutely true premisses and of preventing the growth of ambiguity in the terms of the reasoning, the field of logic must receive a far greater enlargement than symbolic logic contemplates. Logic must be left free to study *any* forms and reasonings that *sometimes* yield *valuable* results, and need not confine itself to the 'implications' ('strict', 'formal', 'material', etc.) and 'entailments' of symbolic logic, any more than to syllogistic 'demonstrations'. It will have to be conceded in principle that the logical value of a reasoning depends in no wise on its form but entirely on its actual effectiveness in promoting knowledge. And it will then appear that many effective and indispensable methods are quite 'invalid'.

(*b*) Symbolic logicians appear greatly to exaggerate the value of symbols as a protection against ambiguity. It is true that when a new symbol is first introduced it is *intended* to be precise and unambiguous, like any technical term. But when it gets into use, it at once becomes subject to the forces that develop ambiguities in words. If it is found serviceable, its meanings may be multiplied by distinctions (*ad infinitum*), extended by analogies, transferred by metaphors; the more useful it is, the more lavishly will this happen. The history of symbols like + and — shows that symbols are just as capable as words of developing a plurality of senses.

Yet they retain a certain delusive appearance of rigidity, which may easily prove mischievous. The use of symbols is apt to conceal from us the continuous development of meanings

in the growth of knowledge. As Mr. Mace admits,¹ "our knowledge of A progressively develops in a way which is not made explicit by the constant symbol A"; nevertheless he cannot bring himself "to admit that such considerations are in anyway destructive of the principles of Formal Logic".² But do they not detract from its vaunted 'exactness'? Do they not convict it of attempting to represent a thought which is essentially plastic, growing, and progressive, by symbols which are rigid and unchanging? And is not this either vicious falsification or the convention of an arbitrary game? Symbolic logicians should seriously consider whether, on their own showing, to symbolise is not to falsify.

(c) The ideal of 'exactness' would appear to conduct symbolic logic to a *reductio ad absurdum* in its attempt to get rid of ambiguity. As Earl Russell once showed, in his paper on '*Vagueness*', for language to become truly exact every word would have to fit the unique occasion of its use. Language, therefore, would have to be composed entirely of *ἀπαξ λεγόμενα*, of nonce-words, which could never be used twice because precisely the same situation would never recur. Exactness therefore demands a vocabulary as infinite as the meanings it endeavours to represent. But it is evident that even if such a language could be devised, it would be unintelligible.

(d) But though foiled in its attempt to soar to such impracticable 'ideals', symbolic logic might well consider whether it could not attain a little more exactness in the use of some essential conceptions and make some useful distinctions which at present it overlooks. It might thereby remove some of the ambiguities from which it suffers.

Thus it is highly inconvenient and unworthy of a discipline aspiring to 'exactness' that it should not distinguish between the potential 'ambiguity' of all words (which we have called 'plurality of senses' and seen to be inseparable from the use of words), and consequently of all 'propositions', and the actual ambiguity of (some) judgments.

Still more harmful, perhaps, is the failure to recognise the ambiguity of 'truth' as applied to judgments and to propositions. There are marked differences between these two senses, and they ought not to go under the same name. The truth of a judgment is relative to the context of the actual situation in which the judgment is pronounced: that of a proposition is not thus tied down to any specific occasion. It claims to be 'universal' and

¹ *Loc. cit.*, pp. 36-7.

² *Loc. cit.*, p. 38.

to hold without reference to any place or time ; whence it is often said to be ' eternal '. *En revanche* its ' truth ' is *potential*, and not actual, and no one can predict *a priori* what will happen to it when it is used and applied to a case. For the ' eternally true ' proposition may then turn into a *false* judgment, simply because what we have attempted is a mis-application of a formula which is true in general, but not in this particular case. Hence, as Aristotle saw long ago,¹ it is quite possible for a ' universal ' ' truth ' to be, on occasion, false. But the true moral of such a *contretemps* is perhaps only that the same term, ' truth ', should not be used both of judgments and of propositions.

(e) All the more, because the question should be raised whether, strictly, ' propositions ' exist at all, and are not the fundamental *fictions* of symbolic logic. This objection is an awkward one, for ' propositions ' are by definition the subject-matter of Formal Logic, which loses its content if they do not exist. Yet it is difficult to see how they can, if symbolic logicians are right in distinguishing between *judgments*, *propositions*, and *propositional functions*. The last of these are said to turn into ' propositions ' when values are assigned to the variables they contain. They then become true or false, having previously been neither (strictly). They have overlooked, however, that all the terms of their ' propositions ' are ' variables ' likewise, and that their values must be stated before their *meaning* can be determined ; after which the truth of the proposition can be considered. Thus both the meaning and the truth or falsity of a ' proposition ' depend on the values given to its variables, and on the use to which it is put. For example ' Nero ' may be the name of a dog or a cat or a Roman emperor, and the meaning of ' propositions ' about ' Nero ' will vary accordingly. So will their truth. The distinction between ' propositions ' and ' propositional functions ', therefore, disappears ; *all* ' propositions ' turn into propositional functions. We may welcome the abolition of an unreal distinction, and may also now assent to the doctrine that ' propositional functions ' (including the so-called ' propositions ') are neither true nor false, seeing that all ' propositions ' remain ' propositional functions ', when they do not turn into judgments. For this will only be a roundabout way of admitting our contention that the ' truth ' of ' propositions ' is *not* the same as that of judgments. With this we may take leave of symbolic logic and its claims to superior exactness and consistency.

¹ Cf. The article on " Aristotle's Refutation of Aristotelian Logic " in MIND, No. 89, (1914).

(III) Compared with symbolic, inductive logic is plain sailing. There is no longer much doubt about its character or much dispute about it. Hardly any one is now willing to contend, with J. S. Mill, that inductive reasoning is formally valid. The real puzzle about Inductive Logic is how it has got into the same *galère* with Formal Logic, and how to discern any logical connexion between the two. One can understand indeed why logicians should have shrunk from altogether ignoring the methods of the sciences and have hesitated to devote themselves exclusively to a logic of 'pure form'. So 'inductive' logic was devised to guard their flanks against attacks from the side of science, and efforts were made to persuade scientists that it represented the logical analysis of scientific procedure. But whether this claim is allowed or not, it does not supply any logical connexion between inductive and Formal Logic. Inductive logic is simply tacked on to Formal, mechanically, and does nothing to render it relevant to scientific method. But it does destroy Formal logic's claim to 'purity'. A really pure formal logic should know nothing of 'inductive' reasoning, and care less. The combination of Formal with inductive logic merely produces a hybrid monster, devoid of all theoretic value.

(IV) Something very similar may be said about the logic of probabilities. This also is an attempt to conceal the emptiness of Formal Logic, and to increase its *prestige* by affiliation to mathematics. But though probable reasonings are extremely common, only a small fraction of them lend themselves to mathematical treatment. Mathematicians are well aware that their theories of probability can deal only with certain special cases, and that probable reasoning extends over a much larger area. Such reasoning is not formally valid, any more than inductive reasoning is; but the two are closely akin, and, but for the prejudices of Formalism, they could strike up an alliance, and be studied on, and for, their merits.

III.

Our survey of Formal Logic has, I trust, given a clear and decisive answer to the question whether in its current forms it is a consistent and acceptable body of doctrines, and this should greatly facilitate the answers to our remaining questions. When we have excised as illogical accretions the attempts of Formalism to deal with inductive and probable reasoning, it is clear that only a very restricted and sterile domain remains to Formal Logic. On every side of it will extend a vast field of reasoning

on which Formal Logic is not entitled to trespass. Probabilities, analogies, hypotheses and their verification, the inductive reasoning from 'fact' to 'laws' and the procedures in formulating the latter, the formation and manipulation of the judgments which embody personal meaning, the selection of the relevant, the choice between alternatives, the estimation and taking of risks, and last but not least the whole study of the psychological conditions of actual thinking, are plainly topics which must fall outside its legitimate purview. So must the epistemological consideration and criticism of the fundamental postulates and conceptions on which it erects its system, and of the actual methods found fruitful in the various sciences. These will naturally seem to vary to some extent in accordance with the differences in subject-matter, problems, aims and elaboration, of the various sciences, but not so radically that we cannot continue to cherish a hope that in the end they will all prove to be only varieties of one general, and characteristically human, method of knowing.

IV.

This great field of extra-Formal logic can of course be cultivated, and it is obviously of vital importance to science and life that it should be. I have myself attempted to explore it, and to effect on it one of two or three pioneer settlements, in my *Logic for Use*, the book which provoked the Aristotelian Society's Symposium, and so this whole discussion. But the field is so large, and pioneering is such a painful and ungrateful task, that I am more than willing to welcome Mr. Mace's handsome offer equitably to divide the field of Logic, and to recognise that there are (as I have maintained) *two* logics, and that attempts to guide actual human thinking are not *ipso facto* utterly contemptible and scientifically negligible, but are entitled to exist side by side with what he regards as the purely theoretic analyses of Formal Logic. He proposes to call this more human and less abstract logic *Useful Logic*. The title is not unacceptable to me, though I have already experimented with *Psychologic* and *Biologic*, and Mr. Isaacs has recently revived the former term. But perhaps one should add a *caveat* to the effect that the disjunction between Formal Logic and Useful Logic is not to be construed as strictly exclusive. I certainly do not wish to deny that Formal Logic has had, and even still has, its uses. Historically it has provided an extremely handy organon for dialectical debate, forensic pleading, theological dogmatics, *a priori* metaphysics, and every

form of word-play; in short, for all intellectual exercises in which the established meanings of words may be taken for granted, or are themselves the subjects of inquiry. Moreover, in its more moderate forms (which do not, I fear, include all the *σήματα λυγρά* of modern symbolic logic) it makes an excellent word-game which sharpens the wits. But when our purpose is the investigation of nature, the discovery of new truths, and the reform of antiquated habits of thought, it is not only useless but pernicious.

V.—TWO PROBLEMS ABOUT DUTY (I.).

By W. A. PICKARD-CAMBRIDGE.

I TRUST that I shall not seem unappreciative of the wealth of food for reflection which the Provost of Oriel (Dr. W. D. Ross) has provided in his essay on "The Right and the Good" (1930), if I venture to offer some comments on two problems, concerning the nature of our duties and the manner of their determination, on which I cannot agree with his conclusions. Let me say at once that, though he has not convinced me, I am grateful to him for compelling me to reconsider these questions and for what I have learnt thereby, no less than for his excellent statement of many points where we are agreed. The two problems in question concern firstly, his view of the dependence of the rightness of an action upon its actual event or result, and secondly, his attack on "ideal utilitarianism", and the success of the particular kind of intuitionism which he proposes to substitute for it. First, I want to ask, Can our duty properly be described as a duty to produce (not merely to aim at) such and such a kind of result or situation, and is success or failure in producing this the sole test whether we have or have not done our duty? Next, I want to ask, Is the duty to do all the good we can only one of a number of *prima facie* duties, between which we have to make a precarious choice upon no constant principle, and is it liable therefore to be over-ridden at any moment by other and conflicting *prima facie* duties (e.g., the duty to fulfil a promise, or the duty to render virtuous people happy)? Or is it (as "ideal utilitarians" have held) the universal principle from which all particular duties are derived, and to which all *prima facie* conflicts between them must be referred for their solution?

An adequate discussion of these questions (and especially of the second) would require a treatise rather than an article. I shall confine myself mostly, therefore, to a review of some principal points and instances advanced by the Provost; but I shall venture to discuss some of them in rather greater detail.

The terseness and concentration with which he both states and illustrates his views, are qualities which I can only admire at a respectful distance; but they have their disadvantages. Of the water-beetle it is written that

"He glides upon the water's face
With ease, celerity and grace."

But just for that reason there may sometimes be depths which escape the water-beetle's notice. I have therefore thought it well to try to give of some points a rather more detailed analysis than the Provost has given, and likewise to envisage examples and illustrations of our duties, of the kind he suggests, as concretely as possible—I will not say in more detail than he had in mind, but in more than he has seen fit to put on paper. Doctrines which saddle us with the duty (say) to "fulfil a promise" or to "ensure" such and such a result, or to "produce such and such an addition to human good", and which look simple and plausible enough when thus abstractly stated, are sometimes apt to look very different when we remember the immense variety of situations and obligations which such phrases may cover, and (*e.g.*) the shifts of circumstance that are apt to intervene between promise and performance; the many slips between cup and lip; the difficulty and frequent impossibility of 'ensuring' anything; the dance to which serious effort to ensure this or that up to the limit of our ability will often lead us; the immense amount of co-operation usually required, and the wheels within wheels which all have to be set moving, if an ounce of good (and especially of some forms of good) is to be squeezed anywhere out of present conditions or successfully floated in them.

Whether this more picturesque and detailed consideration of problems of duty, as they are apt to shape themselves concretely day by day, is an advantage or an irrelevance, and whether or no it goes (as I think) to support rather the views which the Provost attacks, than those which he defends, others must judge. To me it seems that it is necessary, and that for lack of it the Provost has in places (especially in regard to the second of the above two problems) given us a considerably over-simplified analysis which does unintentional injustice to the ideal utilitarian view, by leaving out of account a number of factors which on that view are of considerable importance and often turn the scale, and therewith the flank of the Provost's criticisms. If my counter-analysis of some of his instances is—as I fear it certainly will be—much more prolix and tiresome to follow than

his, this is partly (though by no means wholly) because the matter as I see it is in places considerably more complex: more points need to be taken into account. I shall try to put the case as clearly as I can without leaving out essential factors, and can only hope that what is lost in attractiveness may be gained in truth.

I.

The relation between the rightness of an action and its actual event.

Is an action right because of the situation it actually produces? Should my duty be defined as the actual production of (or the duty actually to produce) such and such a state of affairs? In defending an affirmative answer to these questions, the Provost defends something very like the answer of some utilitarians, that the rightness of an action depends on its 'actual consequences'. That language he does not, indeed, adopt, because he rejects the Utilitarian distinction of 'act' (regarded as the immediate movement or movements I make) and 'consequence,' within the field of events which he deems it right to bring about. But he insists on the point that it is what is *actually* done or produced that makes the doing or producing of it right or wrong. If, indeed, we are to use Utilitarian language at all, take the short psychological view of my 'act' as the movement or series of movements which I immediately will (*e.g.*, the posting back to X of a borrowed book), and call this 'right' in view of its consequences, he would hold it truer to say that A is right as *actually* leading through B and C to D (X's recovery of his book) than to say that it is right as *intended* or as *likely* to do so.¹ But the proper way to describe my duty, as I understand his view, is to concentrate attention on D, some particular situation or state of affairs produced by such a movement or movements (*e.g.*, the fulfilment of a promise, or the restoration to X of his borrowed book), and to fasten the label 'right' or 'my duty' not merely to my immediate movement or movements ('what we do directly'), *e.g.*, to the posting of the book, but to the whole series of changes, more or less long as the case may be—here A-B-C-D—that is involved in, and comprehensively described as, 'the production of D'. The proper account to give of 'my duty', or of what is 'right', is that it is 'to fulfil my promise', to 'restore X's book' or 'ensure X's recovery of his book': and this is, and is known to be, right purely in itself, and not because of

¹ p. 43, foot.

its (*i.e.*, of any further) consequences.¹ So, if I seek to promote the general good by writing a letter to X soliciting a subscription to a hospital, it is not accurate, on this view, to say that what is right is my immediate act, A (the writing and dispatch of the letter), and that because it has as its consequence something else, D (*viz.*, an addition to the general welfare). Rather, what is right is the whole train described as 'the production of the increase in general welfare', and that is right simply in itself ('because it is in itself the producing of an increase in the general welfare') and not in view of any further consequence.² Now this last point, that the limited series of events A-D, called 'the production of D', is known to be right, or to be a duty, purely in itself and without regard to any further consequences, raises a distinct problem: can we properly determine, either absolutely or even *prima facie*, the rightness or wrongness of any limited train of action without reference to the kind of consequences which we see that it is likely or certain to have? Or is not the ideal Utilitarian right in thinking that the goodness or badness of such consequences is here a vital consideration? This problem forms the second of our main questions, and our criticism of this aspect of the particular form of intuition which the Provost maintains against the ideal Utilitarian may be deferred till we reach it.

For the present we are concerned only with the series A-D, within which our particular duty lies; and the question is whether our duty can be described as the *actual production* of (or as a duty *actually* to produce) any particular situation, when (like D) that situation lies beyond any act, A (*e.g.*, the writing and posting of a letter), that we can 'directly do'. The Provost says, Yes. The difference we have to thrash out may, I think, be put shortly as follows. That what we 'directly do' (say, A) cannot be judged 'in itself', but needs to be taken in relation to a wider situation or 'state of affairs' intimately connected with it, we are (I think) agreed. But *how* connected? Here we diverge. I should be content to judge the rightness of what I immediately do by what it may reasonably be expected, after fullest consideration, to bring about: on his view it must be judged by the situation it actually succeeds in producing. Or, again, if our duty is to be defined in reference to the production of such and such a situation, it would, on my view, be sufficiently defined as a duty to do what is reasonably calculated, and may reasonably be expected, to produce such and such a situation:

¹ p. 44, top; 46 foot-47.

² p. 47.

on his view it must be defined as a duty actually to produce the proposed situation. If I have produced it, I have done my duty : if for any reason I fail, I have not. 'Success and failure are the only test, and a sufficient test, of the performance of duty'.¹ Evidently, then, we must consider rather carefully the relation between duty or right action and any kind of prospective external situation or 'state of affairs' to be attained thereby. How near can we go to the position maintained by the Provost ? In so far as his view diverges from the other, does he not fall into a sea of troubles ? Unless I am greatly mistaken, he does.

(a) In one way, and (as far as I can see) in one way only, can our duty properly be described in terms of the actual production of any prospective situation or 'state of affairs', *viz.*, if we alter the whole notion of the duty we are trying to describe from that which we ought to *do*, or to be *doing*, to that which we ought to *seek* or be *aiming at* or *trying* by all means to produce. Then, certainly, the description of this as the actual enactment or production of some given kind of situation is natural and legitimate enough. In that sense, terms like 'duty', 'right', etc., apply naturally enough to any present ends or aims of action whose realisation lies in the future. It is perfectly natural to use the present tense 'I ought' in regard to the realisation of situations which are present *aims*, though they can only be future events—*e.g.*, 'I ought to see X', though he lives half a mile away : and any right act (as I shall maintain when we come to our second main problem) will 'aim at', or have for its 'end' the actual production of a certain kind of 'state of affairs', which proximately may be anything, and ultimately must be the 'highest good' or the best life possible.

But it is not in this manner that the Provost understands or applies the words 'duty' and 'right' and 'obligatory' : he expressly repudiates it.² He adopts the other common, if not commoner, application of the words, not to the present aiming at anything (or what ought to be aimed at), but to the present *doing* of something (or what now presently ought to be *done*). It is at any rate only when the terms are understood in this latter fashion that there is any objection to describing them as the actual production of this or that event or situation (the restoration of X's book : the making an addition to the general welfare), or even (rather more loosely) as the actual event or situation to be produced (*e.g.*, X's recovery of his book, an increase in general welfare).

¹ p. 45.² p. 43, top.

(b) Take, however, 'duty' in this latter sense, as denoting what I ought to *do* or be *doing*, and the objections to describing it as the 'actual production' of any suggested event or situation, beyond what I can bring about by my own unaided personal movements, seem to be abundant and fatal. Let us consider our examples.

In the first place, the act which is thus judged right *for me*, or *my* duty (which implies that it is *my* act), if it be identified thus outright with the actual production of the event D, is often clearly not my act at all, but a train of events culminating in D, which I in this case have initiated, but to which the acts of other people are contributory and equally indispensable factors—*e.g.*, those of my servant (who posts the book or letter), of the Post-Office servants at this end (who sort the letters), of the railway company's servants (who carry them), of the postal servants at the other end (who distribute and deliver them), of X's servant (who takes the book or letter from the postman and hands it to X). In the case of the begging-letter the list is even longer: it extends further to the action of X on receipt of my letter (*viz.*, his writing a cheque for the hospital); next, to that of a similar swarm of intermediaries between X and the treasurer to the hospital; next, to that of another host of intermediaries between the treasurer's receipt of X's cheque and the realisation of any addition to the common good—*viz.*, of those who bank the money and presently pay it out to doctors, nurses, etc. (or, if it be used as a building fund, to yet another tribe of intermediaries—the contractor, brick-layers, etc.), until at last there may with luck emerge some slight addition to the common good in the improved or restored health of Y and Z.

Supposing, then, that all goes well and according to plan—that X gets his book back, or that someone's health is improved—then let it be granted that something right has been done. But what and by whom? Clearly if what is right is to be the 'actual production of the proposed event', it must be that whole train of events (longer or shorter, and, in principle, indefinitely extensible) which produces or ends in the promised or intended result. For the 'production' of the proposed state of affairs in each case consists of the whole series of changes enacted by the whole series of agents concerned, and of nothing less. Suppose a hitch to occur anywhere, and the state of affairs which is the final link in the chain is never 'produced'. Like Harold Bauer's concert in Barcelona (when the men who undertook to secure the piano and get it on to the platform fulfilled their undertaking, but the men who were to unpack it did not), it never

takes place at all. But then queer conclusions follow:—(1) 'My duty', or the 'action' which is (on this theory) held to be 'right for me' to do, is one which obviously in 99 per cent. of cases I never do at all. It usually is, and must be, a co-operative movement shared out between an indefinitely large number of agents. I indeed inaugurate it, and my voluntary share in it is a necessary part of it: for if X got back his book from me (as the debts of Royalty are sometimes paid) through the action of someone else, Y, it would not be said that I had done my duty; while if the restoration was involuntary (e.g., if Y, who was staying with me and going on to stay with X, accidentally included the book in his luggage), it would not be said that anyone else had done his duty either. On the other hand, it is evidently a movement that I take only a very little way. My strip or part of it is limited to A, the writing of the letter: stages B, C and D are left for other people to enact. In both the above instances I hand on the torch to someone else. The Provost notes this difficulty—"that to say I have produced the result hardly does justice to the part played by the Post Office"—but answers that by posting it 'we may at least say that I have secured my friend's reception of the book'¹ I presume this means that though I have not myself delivered the book, I have done that which ensures, or makes absolutely certain, that someone else will do so.² But have I? Obviously not even this. I have laid the Post Office under a legal obligation to deliver it; and I may be able to get damages out of them (i.e., to compel them to do something *else*) if they do not do it: but clearly the book *may* be lost in the post. I have done what renders it highly *probable* that it will be delivered: but to render a thing probable, however highly, is not to *secure* it. 'There's many a slip'. The equation could only be accepted by someone who was prepared to accept the reasoning of Koko³—"Your Majesty says 'Kill a gentleman', and a gentleman is told off to be killed. Consequently, that gentleman is as good as dead—practically, he is dead—and if he is dead, why not say so?" I imagine that the Provost has laughed at this reasoning as heartily as anyone; but the goodness of the joke depends on the badness of the reasoning. Such transitions are *aptiora ad delectationem scænæ quam ad fidem*.

(2) Not only do I not in fact carry through for myself, in the above examples, what on the Provost's theory it is my duty to do,

¹ p. 44.

² Cf. p. 46, where 'securing' and 'ensuring' are used as equivalents.

³ W. S. Gilbert, *The Mikado*, Act II.

but obviously my duty, according to that theory of it, will often be something that I could not possibly do. I *must* so hand on the torch to others. It might *prima facie* be possible for me to return X's book to him in person: so for the moment we will let this instance alone.¹ But in the other instance, the contribution to the general good which it is said to be my duty to make is clearly something which it is utterly out of my power to make. If the funds required by the hospital have to be elicited from X, I cannot by the nature of the case do more than deliver my begging-letter to X in person. Whether X will be moved thereby and send his cheque, whether the treasurer will pay the cheque in or lose it, or perhaps abscond with the money, whether the bank will continue to be solvent or will break, whether the bricklayers and plumbers to whom X's money is distributed will build or will idle or strike (after their manner), and again whether the doctors and nurses, who either take the money directly or use the building erected with it, will do their work efficiently or bungle it—all these issues are clearly not in my power to control, nor yet in the power of any one of the other agents concerned. Yet every one of these issues must be controlled in one particular way, if the promised addition to the general welfare is to be produced. To speak, then, of the 'production of an increase in the public good', in any such instance, as 'my act' or 'my duty' is simply to misdescribe the latter. Nor, for the same reason, is it the duty of any other one of the people concerned in the preliminary stages of the production: not one of them can possibly carry it out, any more than I. If, then, Kant's maxim is to be invoked that 'I ought' implies 'I can',² the only agent concerned whose duty could even plausibly be described as 'the production of an increase in the general welfare' is the final agent (doctor or nurse), by whose action the restoration of the sick to health might perhaps plausibly seem (and the accuracy of this will have to be questioned later) to be directly brought about. Evidently, at least as regards the *other* agents or contributors to that production, the whole duty of each is to make his own particular contribution towards it (A or B or C): only if he fails in this could anyone fairly charge him with having failed in his duty. If M had done his part, and the production of good broke down through the neglect or bungling of someone else, not even the most ignorant or prejudiced person would charge M with any such failure, let alone any of the 'thoughtful and well educated people' to whose opinions we are rightly

¹ I return to it below, pp. 87-8.

² v. Ross, *op. cit.*, p. 5.

advised to attach so much respect.¹ At any rate, my own conviction is quite clear that any such charge against M, if anyone could be found to back it, would not 'stand the test of reflection'.²

What I think reflection does show, in this example, is that even the duty of the doctor or nurse, instead of being an exception, is in the same boat with that of the other contributors to the 'production' in question. The *prima facie* plausible idea that doctor or nurse can 'produce' the cure of Y or Z is clearly illusory. All that they, like anyone else, can do is particular acts (diagnosing, writing prescriptions, administering the drugs or treatment prescribed, etc.) that are *designed* to produce it and *may* do so, if other factors co-operate: but the action of the main other factor (*viz.*, the constitution or recuperative power of Y or Z) is clearly not in the control of either doctor or nurse. A natural remark here would be that it depends on Y or Z: but again, if 'Y or Z' means 'the will of Y or Z', such a remark would be glaringly inaccurate. Y or Z cannot will, and therefore cannot have a duty, to recover. All that they can do, and therefore can be bound to do, is to take the prescribed steps to assist their recovery—cheerfully to swallow nauseous mixtures, to lie still and uncomplaining in unspeakable agony, etc.

If so, the 'production of an increase in the general good' (in this case the restored health of Y or Z) cannot be an accurate description of the duty of anyone who may take part in it, from the interested outsider appealing for funds, who takes the first step in the process, up to the doctors or nurses and patients who take (or try to take) the last step: simply because the production is something beyond the voluntary control of any one of the agents concerned, and even of all the lot of them put together.

It would be easy to multiply examples. Suppose X to be an artist or philosopher. It would be very inaccurate, surely, to describe his duty as the 'production of an increase in the world's good', in the shape of a spreading abroad in the world of new beauties and truths; for this again lies quite beyond his power. His music may be beautiful, and his philosophy true, enough. But to increase the world's stock of beauty or truth he needs

¹ p. 41, top. The Provost will, of course, disagree here: he holds that the borrower of the book *has* failed to do his duty until the book is actually back in X's hand, and likewise (presumably) that the man who duns X for the hospital has failed to do his duty until someone is cured. I state my counter-view dogmatically here, for brevity; but I examine below (pp. 92-4) the Provost's reason for holding what he admits to be a 'curious consequence' of his general view (p. 45).

² *Ibid.*

the help immediately of a publisher who is neither fettered by trade-unions nor himself so eaten up by avarice as to be unwilling to take risks for art or truth; or (alternatively) he needs the help of a millionaire: next, behind this again, he needs the co-operation of a public capable of appreciating and profiting by his work: and clearly it is mere luck if he can find either of these indispensable kinds of ally. The most, then, that (conformably with Kant's principle) it can be his duty to produce, because it is all that he can produce, is no addition to the stock of human good, but only a manuscript or a typescript that is a mere potentiality of such an addition, and by itself as barren of beauty or truth as the Philistines who will probably reject it. It cannot be a duty to make the horse drink, but only to take him to the water; yet if he does not drink, no good is done.

If so, however, all that can strictly be called my duty, or right for me, is not the production of an increase in human good, but some modest act or acts, such as A or $A + B$, designed to assist in such a production. The state of affairs in which the good is actually produced, or its actual production, can only be represented in relation to any act, A, that is possible and therefore can possibly be right for me, as its aim or end or intended consequence, and (if it comes off) as its actual consequence or result. Not that A or $A + B$ is right considered abstractly and in itself; so considered, it is merely a change in the existent which we cannot pronounce either right or wrong to make. Nor is it right merely as having D (some further development of the situation, or some production of good) as its intended consequence: for intentions often miscarry, some because they are carelessly or foolishly designed, some through unpredictable accidents, though designed with all possible care and foresight. At the same time, it is easy to see here what further qualification is necessary. For if A miscarries and fails to do any good for the former reason, no one would say it was right, or what I ought to have done. If, on the other hand, in deciding on A as the best way of trying to add as much as possible to the world's stock of good, I have used all reasonable care, and in the execution of it I have done all that was humanly possible to make it effective, then I think it would be agreed, not indeed universally (for the Provost and those who think with him would dissent), but by an overwhelmingly large majority of people, that I had done my duty, no matter what the actual result might be. Since the cause of failure, should it fail, would *ex hypothesi* be one which no prudence or care on my part could have anticipated or averted, my sheet would be held to be clear. A, then, is right not merely as being

intended or designed to produce the situation D, but only if it be prudently or *reasonably* so designed. Our general conclusion is thus that if duty (what ought to be done) is to be kept within the limits of the possible (what can be done), and is moreover to be something that we can *do* or *effect*, and not merely aim at or promote (and the Provost wishes both these conditions to be observed), then the phrase 'the actual production of a certain situation or state of affairs' is quite inappropriate as a *general* description of its nature : it applies at most to a small percentage of duties but not beyond.

We should, however, distinguish between two cases, both illustrated by the examples taken above, but differing in the mode and degree in which they repel such a formula. They are distinguished by the particular meaning attached to the formula, and particularly to the words 'situation' or 'state of affairs'. Does this denote (as in the above examples) the realisation of some particular kind of *good*—*e.g.*, the restoration of somebody to health, or a spread of beauty or of truth—or only of some *external change*, possibly designed with a view to such a realisation of good—*e.g.*, the supply of the sick with doctors, drugs, etc., or the publication of some book or work of art—or possibly thought to be obligatory in itself, as (*e.g.*) Kant thought the telling of the truth, or as the Provost thinks the fulfilment of a promise to be, without regard to any good to come of it ?

(a) Where the phrase 'actually to produce a certain situation' means 'actually to realise a certain kind of *good*', the formula which describes this as a duty, or our duty as this, seems to me to represent a half-truth if the good in question be of one particular kind—*viz.*, moral goodness—and otherwise to be false entirely.

(1) That, if we choose, we can be morally good, and that implicit in every duty as such is a duty to be so (*i.e.*, so to act that moral goodness accrues) seems to me to be a clear and important truth. The command of conscience, 'Do X' or 'Do Y', is *ipso facto* also by implication a command to obey conscience as such, just as every command of a regimental superior to carry out a particular task is by implication a command to obey the regimental superior as such. It presupposes the existence, and the awareness, of an obligation to render this obedience habitually ; and to render it habitually to conscience is to be morally good. Here too the Provost will dissent, on the ground that while we can control voluntarily what we do, we cannot so control the motive from which we do it, and therefore cannot be bound to act from the moral motive (the will

to obey conscience) any more than from any other.¹ This raises a point with which it is impossible to deal here fully. But it is perhaps enough to make one remark. It is true that of the incentives to action that are popularly described as "motives" many are not always present at call. Their presence is accidental or (as Kant would say) 'pathological'. If X is repugnant to me, any good turn I may do him cannot at will be prompted by friendly feeling or affection for him. But the 'sense of duty', or moral motive, is not at this disadvantage: it is not, like our emotions or desires, intermittent but constantly present whenever needed. In bidding people act always as guided by this, we are not prescribing an impossibility. If I cannot choose to do good to X at the instance of a sentimental affection for him (Kant's 'pathological love'), when I don't happen to feel it—and indeed it would be a dangerous guide if I did, unless backed by conscience—I can always choose to do good to him as in duty bound, and so display that true benevolence or 'rational love' of which sentimental affection may be the companion, but is too often only the simian parody. If so, however, we need not be deterred from holding that it is a duty to be morally good on the ground that we cannot count on the presence of any particular motive, for this objection seems to collapse when the motive prescribed is the moral motive or sense of duty.

But it is important to remember that this is half the truth only. While to act morally is always a duty implicit in every particular duty, it is not itself one particular duty alternative to and exclusive of others, any more (to use a rough analogy) than fertile soil is a flower that supplants other flowers. The will to be moral, left to itself, is barren; it is a pent-up force of endless potencies, but lacking direction to make it effective. Conscience commands obedience to itself always implicitly, never explicitly; just as an officer would never dream of issuing 'Obey me' as a particular order to his troops, but always 'Slope arms' or 'Take that hill', or some order enjoining some definite mode of obedience. The particular matter which distinguishes one particular duty from another is always at least as important a feature of it as the common form which all alike share; and in a sense it may even be regarded as the more important element. In the beginnings of morality, at any rate, it is often more important that an act should be right 'materially' or in outward form than that it should be so spiritually or inwardly—in Aristotle's language, that we should do *οἷα ἀνὸς δίκαιος* than that we should

¹ See *op. cit.*, p. 5.

do them *δικαίως*. The discipline of the 'intention' precedes the discipline of what is commonly called the 'motive'.

But the duty of disciplining the motive yet remains, and therefore, subject to the above proviso, we may admit moral goodness as a kind of good which it is our duty, always and everywhere, actually to produce and exhibit.

(2) Personal moral goodness apart, to produce good of any *other* kind can never be a duty, for it lies beyond the power of the will to do any such thing with any certainty. That to *aim* at or *promote* the realisation of some kind of good or system of goods is a duty, we may freely grant. Utilitarians, for reasons which we shall endeavour to justify later, give this as the final analysis of all our duties; most of those who are not Utilitarians analyse many of them so. But it cannot be a duty, because it is quite impossible with any certainty, to *effect* this. The examples considered above suffice, perhaps, to show that if the good proposed be a dissemination in the world of beauty or of truth, the artist or philosopher, left to himself, is tethered by a very short rope. Nor is the good man in any better case in regard to moral goodness, if what is proposed is not that he should display it himself, but that he should impart it to others. Kant was perfectly right in insisting that our duty in regard to the perfection of others is on a very different footing from our duty in regard to our own. He went, indeed, beyond the mark in supposing that we have no duty even to encourage or seek to promote the former—none, in fact, beyond the very negative duty not to hinder it by putting any stumbling-block (*Skandal*) in our neighbour's path.¹ But in so far as he denied that it can be our duty to realise moral goodness in others, as it is in ourselves, he was perfectly right. We can exhort or instruct others, surround them with good and remove from them evil influences: like 'a respectable family taking the air', we may in ourselves, for their benefit,

'Contain all the morals that ever there were,
And set an example as well'.

But make them good we cannot, as (if we choose) we can ourselves, any more than the doctor can, of himself, cure the sick. 'It cost more to redeem their souls'. Herein, in the view of the orthodox Christian, lay the need for, and the uniqueness of, Christ.

Outside of moral perfection, not even our own personal achieve-

¹ See Preface to *Metaphysical Elements of Ethics*, § VIII. fin., p. 240, foot; Abbott, p. 304, foot.

ments of good can be matters of duty. We can be sure of *aiming* at them, of taking every reasonable precaution to ensure them; but actually to ensure them is beyond our measure. I can, and as artist or scientist I must, as in duty bound, provide myself with all requisite materials, be temperate in my habits, sit in a chair where I shall not inevitably go to sleep, bend all my attention upon my art or science, and in general give it every chance to mature itself: but to say 'It is your duty to produce great art' or 'to produce an epoch-making book on science' would be plainly absurd. The actual achievement of good in these shapes or in any other depends upon the exercise of faculties or talents other than the will, and the will can ensure neither the existence nor the effectual working of any of these. It normally can, and is in duty bound to, produce conditions (both outward and inward) that are favourable to their growth and exercise; but there is its *alte terminus hærens*: no single will of any one, nor yet all the combined wills of all, can do more. Always for anything beyond this, and in abnormal circumstances even for this, we have 'no power of ourselves to help ourselves'; nor concerning the source of such powers do we know anything further than what is told us in the language of religion, *e.g.*, that the ideal intellectual life is possible for us 'by the indwelling of something divine';¹ that they are 'gifts' imparted by a 'Spirit, dividing to every man severally as He will';² that while Paul may plant and Apollos water, God gives the increase,³ etc. It was, perhaps, an accurate perception of this our paralytic incompetence, try how we will, to develop for ourselves securely any form of good but personal morality that led the Stoic, bent as he was on finding and devoting himself to some form of good or happiness of which he could be sure, to cry up moral goodness as the only genuine good or true path of happiness. The task of achieving any good beyond moral goodness, lying as it does beyond the power of our wills to effect or to guarantee, lies outside of the sphere also of duty, so long as we are thinking of our duty as something we are bound to do or to ensure. No doubt, in the ordinary routine of life, a man's powers may normally be competent to do well the kind of tasks to which he habitually sets them. A painter or musician who sets himself to paint a scene or to set words to music does in fact normally turn out something of beauty: so the skilled accountant, or even the average intelligent man, usually succeeds, when he tries, in adding

¹ Ar., *Eth.*, N.X., 7, 8, 1177b, 27, οὐ γὰρ ἡ ἀνθρωπὸς ἐστὶν οὕτω βιώσεται, ἀλλ' ἡ θεῖόν τι ἐν αὐτῷ ὑπάρχει.

² 1 Cor. xii. 11.

³ 1 Cor. iii. 6.

a column of figures correctly. In these cases, then, to 'will' is in fact to 'perform'. But we must not therefore conclude that even in these cases it would be accurate to say 'It is your duty to produce a beautiful picture or motet' or 'to add these figures correctly', rather than to say 'It is your duty to try your best' to do these things; but only that these cases do not show which formula is the more accurate. The crucial instances which do show this are those in which 'to will' and 'to perform' that which is good' fall apart: even genius has its off-days. These seem to me to show clearly that the limit of duty always is to do our level best: but this may or may not be to succeed.

Apart from this, a further difficulty arises for the theory we are examining in regard to all those goods, or 'additions to the general welfare', which are not (like a scientific book or work of art) the direct product of a single mind, but are necessarily the result of co-operative effort, *e.g.*, the rendering of a symphony or of an opera. If every duty is to be a duty actually to produce something, whose duty is it to 'produce' these? The only possible answer (it seems) would be that it is the duty of the orchestra or of the opera-company; for obviously only they, collectively, can produce it. In law the conception of groups of this kind as 'right-and-duty-bearing units' is familiar, but such *personæ* are admittedly *fictæ*. Is the expression 'the duty of the orchestra' any more than a comprehensive shorthand expression for a number of inter-related and co-ordinated duties of the individual members of the orchestra? At any rate, if we are to think of duty as personal, something to be done by some definite individual person or persons (and in the last resort even the complex duties of the so-called 'group-personalities' seem always to come back to this), the proposed 'addition to the general good'—the beauty of the symphony or opera—can hardly be represented in relation to the individual members of the orchestra otherwise than as a result at which each ought to *aim*, or which each should seek to *promote*, to the best of his ability. It cannot be the duty of any of them to 'produce' it; for obviously none of them can: while what each undoubtedly can produce, as the result of his own individual blowing or scraping or (if it be an opera) bawling, is entirely innocent of the beauty of the whole (which is the addition to the general good which we are considering), if not of any beauty whatever. Here too, therefore, is a case, typical of a class of cases embracing most of the more important contributions that can be made to human welfare, where the actual production of any such contribution cannot be said to be the

duty of anyone, but only a proximate end at which it is the duty of all to *aim*. It is the common objective which all together are bound to promote, but not the direct object which any is himself bound to effect.

(b) Where the 'situation' or 'state of affairs' to be realised is not the birth of some particular kind of good, but merely some *external change* in the existent, proposed because it is deemed either favourable to such a birth of good, or obligatory in itself, the theory which would identify our duty with the actual production of the change encounters a difficulty like the one last mentioned, owing to the fact that a very large proportion of changes even in external conditions are normally produced by co-operative effort; and even where none such is necessary, and individual effort is, or seems to be, competent to secure the required result, still the course of the theory is not so smooth as at first sight may appear. In each case I think reflection shows that what is really obligatory on me is not, as a rule and for most of the time, the actual production of such and such a proposed effect, but merely the doing of some preliminary act prudently designed, and executed with all reasonable care, so as to lead up to that effect. To recur to our symbols—my duty is not to produce D, but to do A or A + B, or A + B + C, which may reasonably be expected to have D for their consequence. This is true, I think, always and obviously except when the effect is one which I may seem competent and bound to produce of my own unaided effort. Even in that case it seems to be plainly true of all but the final step or moment of action; while even then it soon turns out that all I can be bound to do is something reasonably designed (though now immediately and at once, not at the next or at some future stage) to produce the effect.

Let us consider this last case first, as it is manifestly the most favourable for the theory we are considering and the least easy for ours.

(1) The production of any external change, like the production of any fresh good, requires, of course, the appropriate faculty as well as the will to produce it: a scholar (*e.g.*) who is paralysed cannot even collect his own books or materials for himself. But there are many things which anyone having the normal endowment of physical and mental powers is (as a rule) perfectly competent to do for himself; and in these cases no difficulty is usually felt in saying that it is my duty actually to produce such and such effects: *e.g.*, that it is my duty to restore a borrowed book to X, who lives next door. But (a) even here

reflection shows, I think, plainly that in all but the last moment of action I am concerned with useful preliminaries only : I must put on my boots, go downstairs, out into and along the street, knock at X's door, go upstairs to his study and enter it. Not till all this is over and I stand face to face with, and actually in reach of, X, is it my duty (because then first is it possible for me) actually to hand him back his book. It may perhaps be objected that this microscopic analysis of what I do into a series of separate actions is pedantic and unnecessary, and that it is both natural and sufficient to treat the whole as a single action, called 'the restoration of X's book'. But really the analysis is essential. If we want to know whether during a whole train of action *x* is my duty, and, if not, when it begins to be, the natural and only way is thus to divide the train into separate actions and to ask when, supposing it to be cut short with *x* still unrealised, should I be said to have failed in my duty. In this instance it is, I think, clear that, suppose my action had been cut short through no fault of mine and in a way I could not have foreseen or guarded against (*e.g.*, if I were struck by a thunderbolt on stepping into the street; or suppose that X, forgetful of my promise to restore the book at that time, had gone out and locked up his house; or suppose that, when I offered it him, he stubbornly refused to take it from me), then X's book would not have been restored, but I should not, I think, be held therefore to have failed so far in doing my duty. The inference must, I think, be plain that at any rate up to the moment when I hand the book to X, it is not my duty actually to restore it, but merely to take the natural (*i.e.*, prudently designed) preliminary steps to doing so. Next (*b*) in the light of the failure of our last supposition (X's refusal to receive the book) to convict me of any breach of duty, it must be plain that even when the moment comes, as we might naturally say, actually to restore it, still all that directly I am bound to do is something that may reasonably be expected to have the immediate effect of so restoring the book to X. If the unexpected and unexpected behaviour of X has rendered my well-meant effort ineffective, that ineffectiveness cannot be attributed to any failure on my part to do what I ought.

No doubt there arises from it a *new* duty on my part to devise some new means of restoring the book to X, independently of X's co-operation even to that modest extent : *e.g.*, I may then, perhaps, try the expedient of leaving the book on X's study table, or on his hall-table, as I go out. But for this provision has been amply made by our admission that the actual restoration

of the book is a result which I am bound by all reasonable means to aim at; from which it follows that if one reasonably calculated expedient fails, then, so long as nothing has occurred to render the restoration finally impossible, another must be tried. But even then, once more, all that I can directly do, and therefore can be bound in duty to do, is something reasonably calculated to effect the restoration: it still is not the actual restoration itself. And the (to me) convincing proof of this is that if now (just as if at any previous stage) anything unforeseen should occur to make the restoration henceforward finally impossible, still, supposing that no reasonable prudence or care would have enabled me to foresee and forestall it, this would not betoken any failure on my part to do my duty. Suppose (*e.g.*) that the thunderbolt, instead of killing me, had consumed the book: still it would be held that as long as the book was in existence, I was doing all in my power (and therefore all that I could even conceivably be bound to do) to restore it to X.¹ Again, suppose that, unknown to me or to anyone except the confidential family-lawyer, X had lately made over his house and its contents, including any of his property that ever might come to be deposited there, to Y: then, in depositing X's book there, instead of restoring it to X, I should unconsciously have made it over to Y; but would anyone say that I had done wrong, or failed to do what I should? ² Rather it would, I think, be said that while the book was in my power, and until without my knowledge it passed into the possession of Y, I did all I reasonably could do, and therefore could be bound to do, to restore it to X.

In either event, we should be faced (assuming Y to wish to retain the book) with (i) a final failure actually to restore the book to X: (ii) at no point any dereliction or failure of duty on my part. If so, it follows that at no point was actual restoration of the book to X my duty, but only (what in fact I did) to aim steadily at that restoration, or persist in doing things

¹ I presently (p. 92) raise the question whether we are bound always even to go to the limits of the possible in ensuring the result at which it is our duty to aim.

² If anyone said so, I think it would be on the ground that, before depositing the book in the house, I ought to have made quite sure that the house and its contents still belonged to X. But I do not think that even the most punctilious person, after finding X in the house, would ever dream of making such an enquiry; and in any case our hypothesis supposes the transfer to be secret, and therefore undiscoverable even had I enquired. Whether the law would in fact permit any such contingent transfer to be made, I do not know. Quite conceivably it might: but I do not think this affects the argument either way.

reasonably designed, in all humanly calculable probability, to bring it about.

That here again, if the book is still in existence, I may have a further duty to try and restore it to X (*e.g.*, by trying to induce Y to part with it, X to accept it,¹ etc.), or that, supposing it to have been destroyed while in my keeping (*e.g.*, by the thunderbolt), I ought now to try to compensate X, supposing him to have valued the book, is very possible. But once more we must observe that (i) this further duty is, in the former case, already covered by our admission that by any reasonable means I must aim diligently at the book's restoration, as long as there seems to be a chance of it; while in the latter case there is plenty of ground for it quite apart from the theory that I must do it because I have failed to do my duty so far :² (ii) these further acts which I now have to do are still not an actual restoration of the book, but only movements designed or intended to lead to this : (iii) they constitute now a new duty—something which it so far has not been my duty to do : (iv) assuming (as our argument does all along) that I have done all that any prudent, sensible man would have done to restore the book to X, I cannot fairly be said to have failed to do anything that I ought to *do*, though I have failed as yet to accomplish what it was my duty to *aim at*. Mine is not a case like that of Sir Bedivere, where (slightly to modify the words of the bard)

“a man has failed in duty twice,
And the third time may prosper”;

and our way of formulating the nature of our duties gives an adequate apparatus for distinguishing the two widely distinct cases. If, on the other hand, ‘success or failure’ are to be ‘the only test . . . of the performance of duty’³ I do not see how they are to be distinguished. Sir Bedivere and I are

¹ It might be thought that if X were unwilling to take the book back, that *ipso facto* absolved me from any further duty in the matter : and if my duty to restore it arose (as the Provost supposes) only from my promise to X to do so, that might doubtless be so. (I hope to indicate in a later article (in July) the exact difference which I think X's indifference would make to the force of my promise). But the book or object to be restored might be some family heirloom, and X be a lunatic peer turned Socialist, and anxious to divest himself of all his hereditary titles and treasures. If so, he would sorely need to be shown, and conceivably it might be my duty to show him, the wickedness of his ways. The representative of some mushroom peerage or baronetcy may perhaps be excused if he so behaves ; but for the bearer of a great name with a great tradition behind it to do so is deeply shameful, a gross injustice on those who are to follow.

² See below, p. 93.

³ Ross, *op. cit.*, p. 45.

then both alike in a common condemnation : and this (I venture to think) is, in the supposed circumstances, flagrantly unjust to me.

Or consider a type of situation familiar in Homeric combats : it is A's duty to protect B, but Athene interferes and holds up his spear, with the result that B is killed. Would anyone say that A had betrayed, or failed in his duty to, B? If not, however, A's duty could not have been the actual or effective protection of B, but at most to do what he could to save him, or what in all normal and calculable circumstances was reasonably calculated to save him. As the event proved, he could not, and therefore could not be bound to, 'ensure' B's safety.

(2) Let us next consider the changes or results which necessarily require co-operative effort. To speak of these as '*my act*', or of the enactment of them as '*my duty*' seems manifestly to be a distortion of fact. We have already seen¹ in one such case (*viz.*, the provision of the sick with a hospital, doctors, etc.) how much more natural and appropriate it is to speak of such provision as something I am bound to *promote* than as something I am bound to *produce*, and of my duty as a duty wisely to *assist* it rather than as a duty to *ensure* it. So likewise it is natural to speak also of the restoration of X's book, if X happens to live beyond an easy walking distance. Even suppose that anyone wished to keep the process of restoration '*my act*' so far as to insist that I must restore the book in person, I should normally be held to be discharging my duty properly if I boarded a tram or a train to X's house. But then the restoration would clearly have ceased to be my act exclusively, and would have become a complex event compounded of my acts together with those of several hired collaborators. My acts clearly do not of themselves either effect or ensure the restoration of X's book, but are at most a contribution to, or element in, that restoration. In our previous symbols, they are not $A + B + C + D$, but an A or $A + B$, designed to lead, by others' assistance, through C to D. It therefore becomes progressively more inaccurate to describe the process of restoring the book (*i.e.*, $A + B + C + D$) as *my act* or *my duty*, in proportion to the number of steps in it which I perforce leave to others : and likewise the increased number of risks of accident, neither foreseeable nor preventable by me, will evidently grow in like proportion, and preclude me even more obviously than before from being able, and therefore from being in duty bound, to 'ensure' or guarantee the book's successful restoration.

¹ Pp. 78-80 above.

But further, not only is the production of such and such an effect something that is seldom within my power to carry through with certainty in my own person, or even to 'ensure' (as opposed to rendering it reasonably probable) through others, but it would not (I think) always or necessarily be regarded as my duty even to make it as secure as I could. The securest way (*e.g.*) to restore the book, and to be able to deal with any unforeseen obstacles, would be to undertake delivery in person. But would anyone hold that my promise of restoration bound me to do this—even though I had unlimited leisure—if X meantime had migrated (say) to Australia, or even to London, or even if he merely happened to live in a distant part of Oxford? The general agreement would (I think) be that I had done my duty, at any rate in the first instance, by posting the book to him; and this, as is plain and as the Provost admits by implication,¹ is not the same as to 'put the book into our friend's possession': nor is it even to 'ensure' X's recovery of the book; for although the connexion is so probable that evidence of posting is accepted in law as evidence of delivery, yet—as again is admitted²—there is always the possibility of the book being 'destroyed in a railway accident or stolen by a dishonest postman'. If so, however, no theory (I think) which seeks to interpret the general verdict of moral judgments could consistently describe the duty arising out of my promise to restore the book in either of the above ways—either as an obligation 'to put the book into' X's possession, or even to do the utmost that I could to secure or 'ensure' its being so put. The general opinion would, I think, be content that I had done my duty if I had taken steps that any reasonable man would say were in all probability adequate to bring about the desired event: that would be all that I need *do*, unless and until evidence of some unexpected obstacle to the result came to light. The event itself, so to be produced, they would (I think) be content to regard as a consequence, and not as any *part*, of what they would hold me personally bound to do.

The only *argument* I find, as distinct from repeated statement, that we are in duty bound actually to produce the proposed situation or event (to restore the book to the lender, health to the sick, etc.), and not merely to take steps that are reasonably designed to lead to it, runs as follows:—³ 'However carelessly I pack or dispatch the book, if it comes to hand I have done my duty, and however carefully I have acted, if the book does not come to hand I have not done my duty. Success and failure

¹ p. 44.² p. 45.³ p. 45.

are the only test, and a sufficient test, of the performance of duty . . . That our conclusion is not as strange as at first sight it might seem is shown by the fact that if the carelessly dispatched book comes to hand, it is not my duty to send another copy, while if the carefully dispatched book does not come to hand, I must send another copy to replace it. In the first case I have not my duty still to do, which shows that I have done it; in the second I have it still to do, which shows that I have not done it.' This argument involves, I think, a multiple misreading of the facts, both as they are and as they would generally be judged to be.

(1) In the first place, if I packed the book carelessly, but it arrived intact through the extra care of some postal official who repacked it safely—or again if I negligently dropped it into the letter-box of the bank next door instead of into the post-box at the Post Office, but it arrived safely, thanks to the bank-manager correcting the result of my negligence, and posting it—in either case the general verdict would (I am convinced) be that I had *not* done my duty, but that the ill-consequences of my failure to do it had been averted by the kindly intervention of someone else.

(2) In the next place, if I had taken what in all normal times would be generally agreed to be reasonably effective means of getting the book to its destination, by posting it, then the general verdict would be that I had done what at the time was my duty, even if it turned out afterwards that the mail-bag containing the book was stolen or burnt. This extremely unlikely accident would (it would be held) not in the least impair or alter the fact that in posting the book I did what it was then my duty to do in respect of its return. An admission that responsibility for the failure to carry out the process to its intended end did not rest with me but with someone else seems to be implied by the fact that if (*e.g.*) I send cash by post in payment of a debt and the cash is stolen or lost in the post, I can claim compensation from the Post Office.

(3) That on discovery of the loss or destruction of the book in the post it is my duty to send another copy may or may not be true. It would not be so (*e.g.*) if the book were unique—*e.g.*, a MS. or the only extant copy of a printed work—or if it were of unique interest to X, *e.g.*, a legacy from his father, and of interest to X not for its contents, but simply as having been his father's copy. In such cases it would, no doubt, be my duty to make such amends to X for the loss of his book as I could, by apology, by compensation, etc.; but clearly not

by sending him any book. Even where the compensation he would most value happened to be another copy of the lost book, my duty would now be to *give* him a *new copy*, not to *return* him *his* copy. In either case this duty that I now have to do is clearly not the same duty as I was formerly bound to do in view of my promise—*viz.*, to take whatever steps were reasonably calculated to ensure the return of his book—but a new duty. It is incumbent upon me *not* because I did not formerly do my duty in the circumstances that then existed, but because, new circumstances having arisen, it is now my duty to do something different.

Exactly what the new duty is, and how it is related to the old one that arose directly out of the promise, depends upon how the circumstances are supposed to have changed. If it still seems possible, and is not too late, to restore the book itself, then the new duty will naturally be to take fresh steps to that end; *e.g.*, supposing it to have been stolen in the post, my duty will be to find the thief, recover the book from him and then take or send it to X in some manner that is as nearly sure as I can make it to reach him. This new duty arises because, as we have already seen (pp. 88-9), the obligation under which my promise to restore the book lays me of persistently trying to restore it perforce obliges me to try new means if the old fail. Otherwise, if this be now definitely impossible, a different kind of new duty arises, *viz.*, to do whatever is next best for X's consolation and convenience: and this kind of new duty arises, in default of the possibility now of specific performance, because the promise to restore on demand was implicitly a promise to see that by lending the book to me X should suffer no loss or inconvenience, or as little as possible. Such an alternative is sometimes made explicit in the form of promise itself: I promise to return the book *or* its value. Otherwise, *ut inter bonos*, it is always understood implicitly. In either event, the ground of the new duty is amply sufficient without assuming that I have at all defaulted in doing my duty so far.

In all these respects—in supposing that my performance or non-performance of my duty is to be judged from the return or non-return of the book into X's possession; in accounting my new duty (in case of its failure to return) to be the same duty as before, still waiting to be done; and in holding that it arises because up to date I have defaulted in, or shirked, my duty—the Provost's analysis appears to me to be wrong and his argument unsound.

We may then conclude that it is not by the actual event that

the rightness or wrongness of an action can be determined—or, in other words, that my duty cannot be defined as the 'actual production' of any kind of result, with the single exception of the growth and display of personal moral goodness. If our duty is to be defined in reference to any *other* kind of future situation or result, it can properly be described only as a duty to *aim at* producing it by acts designed reasonably and with all possible prudence for that end. Or, if it is defined as a duty actually to *do* something here and now, the nature of that something needs to be explicated by a survey in advance not of its actual consequences—which by the nature of the case would be impossible except (perhaps) to a prophet—but of those consequences to which it may reasonably be expected, or is reasonably likely, to lead.¹ If the train of events so inaugurated is likely to develop into the kind of situation or 'end' at which I ought to aim, then I shall have done my duty by inaugurating it, no matter how much unforeseen accident may cause the actual course of events to miscarry. On the other hand, if my act be not prudently designed to that end, then in doing it I have not done my duty, no matter how completely some unforeseen accident may rectify the natural consequences of my folly or negligence and actually bring to pass the event at which it was my duty to aim.

One more instance must suffice by way of illustration. If I, being a good swimmer, leap into the sea to rescue a man from drowning with a reasonable (or even 'sporting') chance of success, I have done right even if in fact I merely get cramp in the stomach and join him in a watery grave. If, on the other hand, I plunge in, being a bad swimmer and quite unfit to attempt a rescue, I still have not done right, even though in my plunge

¹ From occasional expressions the Provost would seem not to be so averse from this way of looking at our duty as his general argument would lead one to suppose. Thus he contends (p. 26) against Kant that it is our duty to '*promote* virtue in another, to bring such influences to bear upon him that his own response to them is more likely than his response to other influences would have been'. (N.B. '*promote*' and '*likely*'.) Again (on p. 28) our 'obligation to bring about a just apportionment of happiness to merit' is qualified by the words 'so far as we can'. Again (p. 58, foot) 'punishing particular offences in proportion to their moral badness' is barred from being right because it does not clearly 'help to bring about' a certain good 'end': the implication being that it would be right if clearly it did so merely 'help to bring about' that end. 'Any attempt to bring about such a state of affairs should take account, etc. . . . and should seek to bring about the required adjustments.' Is it not clearly implied that it is enough to render an act right, if it aims at or 'seeks to bring about' a certain 'end'? Success is not here demanded.

I happen to awaken a slumbering dolphin (or more probably, perhaps, to dislodge a plank of wood from a neighbouring crevice in the rock) whereon we both proceed to ride triumphantly to the shore. I have merely done a foolhardy, wrong act from whose natural nemesis a wholly unpredictable disposition of Providence happened to rescue me, along with the other man: but for that we should have to thank our good luck, not my good management or right action.

(To be continued.)

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VI.—CRITICAL NOTICES.

Das Literarische Kunstwerk. By ROMAN INGARDEN. Halle (Saale) : M. Niemeyer, 1931. Pp. xiv + 389. M.18.

WE may agree or disagree with the author. But assuredly we must acknowledge his work to be a model for all students of *Æsthetics*. For it makes a resolute and much-needed attempt to save this discipline from being nothing but the tittle-tattle of Psychology. In reading a literary work, Ingarden insists, we have a certain entity presented to consciousness. It is our business to try and describe the nature of this entity and not merely to talk about the writer's or reader's feelings or states of mind. He opens up many paths of fruitful enquiry in this line even when for lack of space he cannot pursue them himself. Further, he is fully justified in claiming that his contribution concerns not only *Æsthetics* but also Logic, Epistemology and Ontology, and more particularly the question of idealism and realism. It is relevant to say here that he is a pupil of Husserl. His central problem is : What is the mode of being of a purely intentional entity (*e.g.* a meaning, a fictitious object), that which is brought before us whenever we read or hear a word or a sentence or sentences ? Is it an existent (in German *real*) and more particularly a psychical existent, or a subsistent (*ideal*) ? How is it related on the one hand to acts of consciousness and on the other to independent realities ? How is inter-subjective identity, and thus communication, possible ? Words and sentences, and therefore purely intentional objects, are obviously not peculiar to imaginative literature. Science, History and Philosophy also use them. The question raised is therefore about these also and not merely about *Æsthetics*. Indeed the complaint against Ingarden, we may say in anticipation, will be not that he has confined himself to *Æsthetics*, but that he has not dealt adequately with the differentialia of the latter, and that the essence of imaginative literature cannot be studied, as he would study it, in isolation from the other arts. It is impossible to give a useful summary of the whole of this exceptionally detailed and coherent, though at the same time (whether for good or evil) consciously and severely limited, essay. I will therefore confine myself to the central problem already mentioned, though in so doing, in spite of having begun with praise, I shall unfortunately have to conclude predominantly with criticism.

We take provisionally for the object of our enquiry works like the *Iliad* or the *Divine Comedy*, but also keep in view anything written or spoken (including scientific works). The foundation of the whole argument is this : We have the same *Iliad* or Shakespeare's *Hamlet*, we assume, in many different printed or written copies, readings or productions. This identity would be impossible if the work were simply these copies or sounds. Similarity between these there could be, but there could not be copies or readings *of the same work*. This identity would further also be impossible if the work were simply the experiences or states of mind of the writer or reader. These, in the form of experiencing, are not identically repeatable to the experient, still less to others. So many readers, or rather readings, we should have to say, so many *Iliads*. And what experiences ? The author's toothache while writing, or our eye-strain while reading ? And can experiences be "written in hexameters" or have the sonnet-form ? For the same reason the work cannot consist of "presentation-objects" (*Vorstellungsgegenstände*) considered merely as dependent on or as components of the writer's experiences. For, since the experiences are not identically repeatable, therefore neither are the presentation-objects which are inseparable from them.

Thus Ingarden disposes, though only in a preliminary way, of psychologism and also introduces a distinction important throughout the argument, namely, the distinction between the work itself and its many concretions. The concretions are the particular readings or productions which, within certain limits, may differ widely from each other and yet be *of the same work* ; the work itself is the identical entity of which they, if they are "right" concretions, are the differences permitted by itself, and which also somehow is when there are no concretions. Another point made at the beginning, which is also important throughout, is that the work, though organic, consists of many strata, is a polyphonic harmony. These strata are : (1) that of sound ; (2) that of meaning ; (3) that of exhibited (*dargestellte*) objects (or objectivities) ; (4) that of schematised "aspects". There are also (5) the "metaphysical qualities" and (6) æsthetic value-qualities. These two groups do not exactly form special strata. The central problem is dealt with in relation to each stratum as well as to the whole work. A third ever-recurring distinction is that between the existent (*real*) and the subsistent (*ideal*). The former comes to be, lasts for a time, may change, and ceases to be ; the latter is timeless and unchanging. Continually the question is asked whether there cannot be a third mode of being. Lastly there is the distinction between the autonomontic (*seinsautonom*), that which is independent of acts of consciousness (every existent and subsistent), and the heteronomontic (*seinsheteronom*), that which is so dependent ; to be heteronomontic is not to be psychical : e.g. the perceived rainbow is not part of the percipient's consciousness (p. 19).

The sound-stratum of the work consists in the first place of in-

dividual words, and secondly of higher sound-formations (sentences and sentence-concatenations) with properties of their own such as rhythm and tempo, etc. What belongs to the work itself is not the particular *hic et nunc* utterance, the material sound, an individual existent which is different on each occasion. This is only a support (*Unterlage*) for the concretion of the work. To the work itself belongs that which, in the case of a word, makes the latter always "the same," in spite of differences of pronunciation and enunciation on each occasion: a self-identical typical sound-structure or form (*Gestalt*) which is identically actualised or concreted in the many *hic et nunc* utterances. It is not an existent; for an existent cannot be present as identically the same in many existent individuals or existent individual occurrences. But neither is it a subsistent autonomontic object and on the same level as, e.g., mathematical objects; for it comes to be and can change (though it is "the same" in relation to its concretions). It is this identical structure (*Gestalt*) which among other functions has that of being the bearer of an identical meaning or signification, and its own identity is closely connected with that of the latter.

The second stratum is that of meaning, the meaning of individual words, sentences and sentence-concatenations (e.g. a proof, a narrative). The meaning of individual words if they are onomastic (German *nominal*: e.g. "table", "red", "black"), sketches or projects (*entwirft*) an entity, whether a thing, person, act, state, attribute, as an object (*Gegenstand*, *gegenständlich*, *vergegenständlichen*), as a subject of attributes, as something static and complete; if they are rhematic (German *verbal*: e.g. "runs", "sat"), their meaning unfolds dynamically any entity (it may be the same as the onomatically projected) as process in development, as coming to be, happening. "Object" is used to denote the onomatically projected, "objectivity" (*Gegenständlichkeit*) to cover that and also the rhematically unfolded. An onomastic meaning and a rhematic meaning along with meanings of "functional" words ("and", "or", "is", "here", "this") combine to form a new organic meaning-unity which is the sentence. The function of the latter in itself (apart from any special purpose which it may be made to subserve, such as that of knowing, communicating, influencing others, etc.), is the onomastic-rhematic unfolding of its correlate. In the case of an enunciation (*Aussagesatz*) the correlate is the state, comportment, or circumstance of something (p. 117: *ein Sachverhalt*, hereinafter translated by "circumstance"). In a sentence-concatenation we have many sentences and therefore many "circumstances." These "circumstances" together constitute and "exhibit" (*darstellen*) an object or objectivity, or many objects, or a world of persons, things, events, etc.

We must distinguish between the meanings and the "circumstances" they project, the objectivities they exhibit. To meaning itself belongs such a quality as clearness. (This belongs to the

meaning itself and is not introduced by the reader; it is due to structural peculiarities of the meaning, e.g. to the sharp separation of its component parts in the case of a sentence-concatenation, to their special ordering, etc.) Other qualities belonging to it are simplicity, complexity, lightness or heaviness. Together these form the style of the work. That meaning is not the same as the projected "circumstances" or exhibited objects, may be seen from the fact that the beauty of the style sometimes prevents us from getting at these. Meaning is the rational or intellectual part which all literary works must possess in differing degrees (pp. 211-218).

What is the mode of being of a meaning (*Bedeutung, Sinn, Sinn-einheit*)? The essence of a word (and this applies *mutatis mutandis* to sentence-meanings, etc.) is that it has a meaning, and by virtue of the latter intentionally signifies (*vermeint*) an object, and in this signifying (*Vermeinen*) determines it *materialiter* and *formaliter*, or exercises intentional functions in relation to an already intentionally projected object. This intentional signifying is different in kind from the word-sound and is not a property of it; it is connected with it, forced upon it *ab extra*, "lent" to it. It is lent by an intentional signifying contained in an act of consciousness. But it itself is different from, "transcendent" in relation to, the latter though dependent upon it both for its coming to be and its being. A meaning is thus not (a) a physical entity, nor (b) a psychical entity or an element of the concrete stream of experience. (This last can be seen from the fact that changes in meaning due to altering the position of a word in a sentence or the position of a sentence in a sentence-concatenation are not the same as the parallel changes in events of consciousness.) Therefore a meaning, being neither physical nor psychical, is not an existent. But neither on the other hand is it a "subsistent species" (*ideale Spezies*) as Husserl once held. For it comes to be, changes and is annihilated through subjective operations which we can watch ourselves performing. Were all meanings subsistents, we should have to hold (amongst other absurdities) that every limerick, tale, theory, and every minutest variation of each, that has ever been or will ever be composed or half-composed to be immediately rejected, has subsisted from eternity, and that every author is only a discoverer and in no sense a creator. Besides, all subsistents are autonomontic, while meanings are heteronomontic. There are indeed subsistent meanings, the "subsistent concepts" (*ideale Begriffe*). But these are not identical with the meanings of words, sentences, etc. Elsewhere (pp. 87-90 and 375 ff.) we are told that word-meanings, etc., are actualisations of elements of the subsistent concepts. A meaning is therefore a *sui generis* entity, heteronomontic though pretending to be autonomontic, neither physical nor psychical and so not existential, nor on the other hand a subsistent (pp. 91-108). Meanings belong to the work itself in a form different from that in which they belong to the concretions of the work. In the work itself they are in the

form of "lent" intentionality; in the concretions they are really and actually meant by the reader, but they do not because of this become psychical (pp. 350-351). (Yet on p. 101 the signifying (*Vermeinen*) which is contrasted with the "lent" signifying is said to be a moment of the act of consciousness, i.e. psychical presumably; cf. also pp. 119 ff.).

The "circumstances" and the objects exhibited by them, with which we have here to deal, are purely intentional. A purely intentional objectivity is one which is created, determined, maintained, changed and annihilated by an act or acts of consciousness either immediately, or mediately through a "lent" meaning of a word, sentence, etc. It is entirely heteronomontic, a "semblance" (*Schein*) (pp. 119-128), and in this way different from all autonomontic objects existent and subsistent. It is not, however, psychical, not a part of the act of consciousness. Only in the case of genuine judgments (and that too only if they are true) have we anything beyond the purely intentional "circumstance" or object. The latter are present in this case also, though generally unnoticed; but they become transparent, and the intentions of the judgments point through them or over them to the real autonomontic objects. Between the intentional and the real autonomontic "circumstance" or object, in the case of true judgment, there is adaptation in all their determinations to the point of identifiability. This happens because both are concretions of the same subsistent essences (*ideale Wesenheiten*) or Ideas, the first a heteronomontic concretion relative to subjective operations, the second a concretion characteristic of the sphere of being in question, e.g. in the case of existents, in the form of autonomontic realisation of the essences or Ideas (pp. 167-170). The objects exhibited in a literary work may in many respects resemble real autonomontic objects known to us in the existential world. But they are neither transparent windows to the latter, as in the case of genuine judgment, nor copies or representations of these. In many important respects they can differ widely from them. For example, there can be purely intentional correlates to nonsensical sentences. The special charm of many works is that their object-stratum contains "opalescent" objects created by contradictory, ambiguous or equivocal meanings (pp. 147, 258-259). Further, every intentional object in every work, though "meant" or projected as possessing an infinite number of determinate characters (*Soseinsbestimmtheiten*) like any real object, yet, as far as explicit exhibition goes, is determined only in a finite, and indeterminate in an infinite, number of respects. (For in a work there are only a finite number of sentences and therefore of exhibiting "circumstances"). Moreover, these determinate characters even are not, like those of a real object, lowest differentiae ("concretions of eidetic singularities," e.g. this particular tint of red); for the work is made up mostly of general names. Thus every object in the work itself is only "schematic". In the different

concretions of the work the lacking determinations are supplied (but not completely) and the given determinations turned into lowest differentiae, variously by different readers, the range of licit variability being generally but not always fixed by the schema itself. This "schematism" explains the possibility of different concretions.

The treatment (in pp. 259-297) of the last stratum proper, that of the "aspects," is one of the most interesting and important parts of the work. I must, however, be ruthlessly brief. In "aspects" (*Ansichten*), "views", or "looks" (the words are to be taken in the widest possible, and not merely the visual, sense) an object or one of its properties comes into appearance (*Erscheinung*) or givenness, is intuited, "seen", self-presented (*selbstpräsentiert*). All sense-qualities may appear in aspects. But not these only; there are "inner" aspects (and it is not proved that they must be based on sense-data) of our own psychical events and properties of character. The content (*Gehalt*) of the aspect is different from the appearing object: the perceived object may be spherical, but in the content of the aspect there is only a "round disk" with peculiar reference to the spherical shape; or it may be a circular wheel, when there will be in the aspects all possible ellipses. The object is autonomontic, while the aspect is dependent for its being and nature on the percipient, though not on him only; it is therefore not purely "subjective" nor a psychical event. What is said about the heteronomy of an aspect of a real object applies of course *a fortiori* to the aspect of a purely intentional object.

In the literary work itself the aspects, like the objects themselves, are only schematised. They are filled in variously by different readers in the concretions. Certain limits can be prescribed to the variability by the work itself when it provides conditions (not only special meanings projecting special circumstances, *e.g.* in metaphorical description, but also special qualities of sound, *e.g.* onomatopoeic words, certain rhythms) which "force" the reader to actualise aspects of a certain type. In this case the work is said to contain aspects "held in preparation" (*paratgehaltene*). Without the latter the work itself would exercise little or no control over its own concretions, whilst without any aspects actualised in accordance with the prescription of the work or otherwise, the exhibited objects would be merely "conceptual" schemata, thought or meant only and not "seen". The "seeing", actualising or concrete experiencing takes place imaginarily only and not perceptually, except in the case of a produced play, which is no longer a merely literary work of art.

The consideration of the strata has shown us some of the ways in which different concretions of the same work are made possible and indeed inevitable, and also the relations between the work and its concretions. In its concretions the work "lives", and in living may also be changed (through subjective operations, of course),

e.g. when sentences are added or taken away, when a particular concretion is taken for and thus "masks" the work itself so that later concretions spring not from the work but from the concretion, when a language becomes "dead" and words lose not indeed their meanings but all that went with the forgotten pronunciation. The work may also die, e.g. when the author in special intentional acts (*intentionale Akten*) reduces it to nothing and at the same time annihilates the physical conditions which would make possible its concretions for others, or when no one can decipher the text. The work can also be re-born or restored to its original condition, when scholarship once more deciphers the text, or does away with faulty concretions and sends us back to the work itself.

What then (to come to the central problem already dealt with in regard to the strata) is the mode of being of the work as a whole (a) in its concretions, (b) in itself?

(a) About the concretion we are told only that it is different from and not a part of the numerous heterogeneous acts of consciousness and experiences on the part of the reader on which its being depends, and is therefore not psychical (pp. 346-348). But it is obvious that the intended conclusion is that the concretion as a whole and in each stratum is a heteronomontic entity, neither psychical nor physical, neither existent nor subsistent. Yet there is much in Ingarden's book which one might be tempted to look upon as evidence showing a different mode of being for each different stratum. The sound-stratum (concrete sound in the case of the concretion) might be taken for a physical existent. But the retort, also to be gathered from the book, would be that the physical sound-material is only a support (*Unterlage*) which "bears" the concretion of the typical sound-structure (*Gestalt*), which concretion alone forms the stratum of the concreted work, while the individuality and existence of the sound-material are irrelevant to and not parts of this stratum. The written or printed signs are even less an integral part of the concreted work (pp. 30-34, 36-37, 40-53, 349, 383). This answer would obviously be right, but one desiderates some elucidation of the relation of a concreted or actualised entity to the existence of that in which it is concreted or actualised. The meaning-stratum might be taken for a psychical existent. For in the concretion the meaning is actually and really (*wirklich*) meant and not merely "lent", and according to some passages (pp. 101, 119 ff.) such meaning apparently is psychical. But I am sure that here I must be misunderstanding the author. The object-stratum and aspect-stratum in the concretion are not merely dependent on but apparently inseparable from acts of consciousness, and because of this inseparability Ingarden, it might seem, should call them psychical, since apparently he makes this inseparability a reason for assigning psychical status to the very mysterious presentation-objects (*Vorstellungsgegenstände*) including their space (pp. 224-231). But I think that he should rather refuse to call even presentation-objects psychical.

But (b) far more mysterious is the mode of being of the work itself. The latter is of course also heteronomontic, neither psychical nor physical, neither existential nor subsistent. But it has being apart from its concretions. The question of the possibility of this is very important, because in it is involved the possibility of intersubjective identity and communicability without which no knowledge or science is possible. (Here it is implied that the concretions themselves are not intersubjective or communicable. Yet it seems from pages 362-363 that the actual work of criticism is the communication of them.) The literary work, any sentence or sentence-concatenation, once drafted (*conzipiert*), has being (*existiert*), even if not thought or read by any one (pp. 373-374). (This is rather astonishing after all that we have been told of the work dying through lack of the necessary subjective operations.) It has its origin, it is true, in the author's subjective operations, but it is not created *ex nihilo*, and once originated its being is founded in (a) the subsistent concepts and essences and (b) the existential word-signs (at any rate when written or printed). A word-meaning is an actualisation of a part of the meaning contained in an autonomontic subsistent concept. The author's operations bring about actualisations of selected moments of the subsistent concepts and unify these actualisations in a new whole. But the moments timelessly are, independently of his operations. So is also any subsistent essence (e.g. redness) which by his *sic jubeo* is actualised in, for example, a purely intentional table though not "realised" as in a real existential autonomontic table. By looking at the subsistent concepts and essences which always are, the reader may reactualise in the precisely identical way in which the author actualises, the meaning given by the latter to a sentence. Similarly the existential printed or written signs, which will direct the reader, are always there, independently of the author, when once made, until they are destroyed. Much here omitted is hard to understand, and one must say that it is a pity that a book on Aesthetics should be so esoteric in its philosophy and contain scarcely any explanation of its cardinal philosophic terms. For this one must go to Ingarden's other writings and to Husserl. Most aestheticians will not do so, and it is impossible for the reviewer to summarise Husserl as well as this book.

Against this explanation it may be urged: (1) If the work really is, independently of its actualisations, then it cannot be changed through these or die because of the lack of them. (2) The being of its parts (the essences and concepts are not even its parts) is not the being of the work which is other and more than they. The being here assigned to it is like that of an unborn person secured by the being of his potential parents and of the conditions necessary for human organisms, or like that of a dead person secured by his having been born and having lived. (3) The problem is not peculiar to the literary work of art: (a) any "aspect" of any physical or other

existent autonomontic object is, it would seem, heteronomontic, neither physical nor psychical, neither existent nor subsistent. (b) A person or a substance is autonomontic, but it cannot have spatial or temporal existence in the same way as its activities or manifestations. Yet, empirically speaking, it must be said to come to be and to pass away and therefore not to be a subsistent. (c) A "kind" (natural or artificial) is autonomontic but not existent like its individuals. Yet, presumably it comes to be, passes away (and changes ?) with these and therefore cannot be a subsistent. (d) At the most, the problem is peculiar to a purely intentional object which is a correlate to a purely interrogative, imperativ or optative meaning. (4) The problem does not touch the essential differentia of the work of art. Just as what distinguishes the intentionality of the judgment from the intentionality just mentioned is: (α) its value or relation to a norm (*i.e.* Truth), and (β) relation to a whole individual autonomontic object and not merely to autonomontic concepts and essences, so the differentia of the intentionality of the work of art is: (α) relation to a norm (Beauty) and (β) relation not merely to concepts and essences but to a whole autonomontic individual: the "metaphysical quality". With these relations, it may be, is bound up the intersubjective identity in both cases. To propose a consideration of the work of art irrespective of its value or reference to a norm (see p. 18), even by way of preliminary analysis, is like undertaking an analysis of the judgment without reference to Truth. What makes the work a work of art, according to Ingarden, are the "metaphysical qualities" and the aesthetic value-qualities (*Wertqualitäten*). (These, I would suggest, may be identical or at least more closely connected than he allows.) Both these, according to himself, do not belong, except potentially, to what he calls the work in itself, which is therefore not properly a work of art. Its consideration, therefore, is self-confessedly not to the point.

The real crux of *Æsthetics* is in what he says almost incidentally about the "metaphysical qualities" (pp. 300 ff.): the sublime, the tragic, the holy, the grotesque, the charming, etc. A "metaphysical quality" or essence (*Wesenheit*), he maintains, just like the redness of the purely intentional (fictitious) table is merely *actualised* in or by the work of art (when the latter is concreted by the reader). Only in a real existential situation is it *realised*. But (to choose for brevity's sake a quality easiest for my purpose) is a joke (a story) not *really* funny because it is only a joke or story? Conversely is not the existentiality of an existent situation irrelevant to its humour? Is not the reality of the humour the same in both cases, or, if anything, purer in the story? I suggest, firstly, that the "metaphysical quality" is not a subsistent essence like redness, but subsistent like a person or spirit. Secondly, that the work of art (at least when concreted) *really* either brings about, like an evoking incantation, or constitutes, the "real presence,"¹ epiphany or avatar

¹ Cf. the controversy on the doctrine of the Mass.

of such a spirit. Thirdly, that it is this function and nothing else which confers "quasi-reality" on the purely intentional "exhibited" objects. I am not sure that I could myself subscribe to all this. But I give it as a *prima facie* description of the *prima facie* claim of the aesthetic experience. It is none the less valuable because it is old and primitive and applies also to ritual and magic from which primitive art is inseparable. To deal with it may require an analysis different in many respects from Ingarden's.

My criticism is far-reaching. It amounts to saying that the author ought to write another book. But all good books make us say this. Bad books make us think, and sometimes even say, that the author ought never to write anything at all. Ingarden's work is certainly one of the most stimulating, suggestive and penetrating books I have read on the subject, both in the details of what I have here indicated only in the barest outlines and in much, very much, which I have not indicated at all. One hopes that he will have time to apply the fineness, acumen and above all thoroughness here shown to the further treatment of the profound problems he raises.

P. LEON.

La Pensée Intuitive. II. Invention et Vérification. Par ÉDOUARD LE ROY. Paris, 1930. Boivin et Cie. Pp. 297. Price 20 fr.

VOL. I. of this important work, noticed in MIND for July, 1930, contained M. le Roy's general theory of intuition, while the present volume contains a development of consequences, both practical and theoretical, showing how intuition can be disciplined and used for fruitful discoveries, and in what ways it is to be verified. True intuition, it is claimed, can put us into touch with absolute reality; and it is part of the purpose of the book to justify this claim, by removing various false assumptions which stand in its way.

There are four chapters, of which the first three deal with the three main stages of inventive activity, (discipline, creative or, preferably, innovating imagination, and verification), while the last raises the complicated problems involved in the notions of absolute knowing and absolute reality.

I find myself in general agreement with what M. le Roy says about dynamic schematism, but so much in disagreement with what he says about intuition, that I venture in my exposition of his views to take these two aspects separately, as I did previously in my notice in MIND of Vol. I.

The general problem is the familiar one of the growth of knowledge, to which empiricism, rationalism, and the Kantian synthesis are alike inadequate. M. le Roy takes the view, widespread at the present time, that there are no hard and fast data by means of which to test hypotheses; no static *a priori* principles of reason,

through which final conditions of intelligibility can be imposed ; no given forms of intuition in the Kantian sense, which impress a universal organisation on given materials ; and finally, that truth itself is not static. Facts, theories, and principles of reason, are all subject to becoming ; theories modify the facts by which they are tested, principles of reason are changed by the endeavour to discover facts and theories which are adapted to one another, and such an endeavour never results in finality, but is to be described rather as a new orientation, a breaking up of old facts through the imposition of a new schema or pattern. Discovery in short is essentially a remodelling of the situation. Such a remodelling, successfully achieved, can be described as the discovery of truth ; but as it is always a stage to something beyond, it can be spoken of as a "verification" of the foreshadowing of it through which it was brought about, but not as "the truth". Our attitude toward it should be, as M. le Roy well says, militant and not triumphant.

This interplay between "facts" and "patterns" (I use the word to include principles of reason, ideals of explanation, forms of perceptual organisation) is what M. le Roy regards as the true "invention" ; and as it is neither an affair of imposing entirely new patterns on a purely plastic flux nor an affair of introducing new combinations among elements completely solid, he prefers to describe it as an activity of "innovation" rather than one of creation or of combination (101). This term innovation (he uses the phrase "imagination novatrice") is admirable, and enables him to refer constantly to the two sides of the work involved in all discovery : making and finding. The discoverer (I should put it) has to elaborate the patterns by means of which to characterise the world he is seeking to discover ; the word "characterise" has I think the same two sides. M. le Roy thus presents himself as a mediator between pragmatism and intellectualism.

Discovery or invention, then, can be described as dynamic innovation (though M. le Roy does not use the phrase). Whence comes it, and how is it guided ? The first three chapters endeavour to answer these questions.

The starting point lies in some particular field which has already been parcelled out into distinct objects and their interrelations, as the result of previous inquiry. There is already developed in connection with it a relatively stable system of experiences, habitual modes of behaving, conceptual discourse. And the field itself is one of a number, each with its own distinct modes of parcelling out and of conceptual discourse. So long as we remain within the limitations of such stable systems, accepting their fundamental concepts, however many new developments of consequences we may make, we are only developing and not genuinely innovating. Genuine discovery, in short, involves a new parcelling out of the whole field, in the light of new concepts.

It is clear that, to get this new vision, you must first master the

old. But next you must free yourself from its limitations by a discipline in which critical analysis of concepts, development of alternative systems of assumptions, dissociation of familiar associations, play their well-known part. Then comes a period of intense brooding over the whole situation, without the explicit guidance of distinct concepts; attempts being made to discover new relationships, new ways of systematising the field. During this period the mind is conscious of taking all sorts of absurdities seriously, of not being stayed by apparent contradictions, of laying under contribution concepts borrowed from other fields. What is especially to be guarded against at this stage is premature acceptance of some suggested systematisation; the chief effort being to hold the mind in as fluid a condition as possible in the presence of the whole field. The central point of achievement comes when the mind finds itself possessed by (the phrase expresses what M. le Roy intends better than the phrase "in possession of") a vision of possible systematisation which is not yet developed in any one particular way, and yet is felt as straining for such development. This activity of vision which possesses the mind is the dynamic schema, described in the first volume; and we need not here linger over it. It shows itself as an expert readiness to develop detail in this or that direction, without being exhausted by the development in any particular direction. To the work of dynamic schematism M. le Roy attributes all genuine innovation; and he regards it, as found in man, as being only a particular instance, at the level of consciousness, of a process at the heart of all evolution (134, 136 n.).

The schema then is a vision, pregnant with concrete systematisation. The author describes it as an intuition, in terms which I shall consider later. But it is essential to his thesis to regard it only as provisional until it has received verification through the process of actual development into detail. Such development results in a profound modification both of the elements into which the field is parcelled out and of the patterns of organisation by which the field as a whole is constituted: or again, from the point of view of the conceptual organisation of knowledge, in a modification both of the fundamental principles ruling within the field and of the facts described. Physics, with its need for new patterns of organisation of the spatio-temporal both in the sub-atomic and the inter-stellar regions, provides excellent examples of the whole process; but it is to be found wherever human experience develops. M. le Roy instances the function of the poet in rousing such new visions of ordinary life; and since he regards the sense organs as themselves modified under the working of innovating schemata, I think that he would view with sympathy the idea that, parallel to the history of the transformation of our knowledge of the world through science, there is to be written a history of the transformation (taking place more slowly, but of enormous significance) of our perceptual organisation of the world through literary and plastic art. I (and I think he

would also) should regard the work of the great teachers in the field of human conduct in precisely analogous fashion: the antithesis between facts and values being transformed through the theory of innovating pattern.

The need for innovation in any field arises through various causes. Unresolved contradiction within a particular field is of course one of the chief. The existence of heterogeneous principles within distinct portions of what are felt to be fundamentally the same field is another. Thus, for instance, at present the field of physics is divided into three portions, not fully unified. There is, again, lack of unity between the physical and biological fields. Or again, over the field of experience as a whole, the points of view of ordinary life, of scientific thought, and of æsthetic perception, are distinct, and in many respects heterogeneous; and the mind does not readily acquiesce in this. But there are other causes. M. le Roy notes, *e.g.* (157), the way in which the search for beauty guides the inventor, even in mathematics and in science. "Accessoire peut-être dans la science une fois faite, où elle semble un surcroît, la beauté en effet joue un rôle discriminatoire essentiel dans la science en voie de formation: elle est moyen de discernement." He seems anxious, however, not to make too much of this (158). My own feeling is that it is of great importance; and I should wish to avoid misunderstanding by suggesting that, whatever may be its fate in regard to æsthetic theory itself, the notion of significant form does express precisely the notion of innovating pattern which plays so important a part in M. le Roy's whole view. The innovator is spurred on not merely by explicit contradiction, but by an intellectual dissatisfaction with the form of organisation of an existing field of knowledge; in his search for something better he is often profoundly stirred by a vision of what would be a more satisfying pattern; and it is this which M. le Roy expresses as the search for beauty. But final satisfaction—the realisation of beauty in this sense of the word—would result only from the successful imposition of a satisfying form on a material whose fuller potentialities were brought into life just through this form; and it is precisely this which M. le Roy means by the verification of a dynamic schema.

The whole process, then, is dynamic, and never ending. A particular organisation, once developed into detail, forms the starting point for a new one. And the innovating mind is a developing mind, set in a developing universe. What then guides the whole process? Whither is it tending? Are we forced into a thorough-going relativism?

It is clear that for M. le Roy there is no static real, by adequacy to which progress of knowledge could be tested. There is for him equally no absolute Reason, eternally complete and perfect, toward which we could regard the human reason as tending in its development. The goal, if there be one, the law of progress if there be one, must lie within the process itself, as the limit of a series sometimes

does. Let us consider how M. le Roy describes it in terms of the dynamic schema, considering separately his description in terms of intuition.

He regards the division of experience both into the whole field as seen from particular points of view (*e.g.* practical, scientific, æsthetic) and into particular fields (*e.g.* the different sciences) as a characteristic feature of experience, and he stresses the difficulty of getting a single detailed articulate parcelling out of the whole field which would embrace all these divisions. We are then committed to various fields, each with its own point of view. In this sense it is true that knowledge is relative to particular points of view. But this is true only statically and not dynamically (241). For to see the way in which the various points of view arise out of reality as a whole, and to be able to move freely from one point of view to another, is to be beyond the particularity of the points of view, it is to possess—dynamically—absolute knowledge (243). Thus a dynamic schema of reality as a whole would be one capable of giving rise to the various points of view, in their distinctness. We are of course far from this; but our whole effort is a movement toward it.

Let us now consider the ideal in terms of intuition; for the doctrine of dynamic schematism is for M. le Roy essentially a doctrine of intuition, and it is here that I find myself in disagreement with him. I should accept the general point that experience is essentially intuition in the sense that the detailed organised field must be grasped in an act which goes beyond the multiplicity of the detail, and is not exhausted by any particular mode of ordering the detail. The pupil for example who can follow the detailed links in a particular exposition or proof, but who cannot either invent the proof or provide variant orderings of the material dealt with in it, lacks the grasp of the field as a whole which is essential to true experience.

But intuition for M. le Roy involves much more than this. There are I think three fundamental points. Firstly, it involves a grasp of the field of experience in its fluidity, at a stage *au delà du discours*, beyond and above its organisation in detail from any particular point of view. It involves, secondly, the intimate presence of the knower to the known, where there is no gap between the two and so no possibility of error: in short identity of knower and known. Thirdly, it is above the contingency of particular points of view. If there were any particular experience available to us which was a true intuition, it would show from this point of view a character of invariance. (See the passage 214-215, too long to quote.) And from the practical point of view, it is this character by means of which we judge of our approach to the real (239-242). This third character (at least as described on pp. 239 ff.) seems to me somewhat discordant with the other two, and to involve a movement toward the abstract rather than toward the concreteness of intuition; but it is possible that I have misunderstood. I confine myself to some remarks on the first two characters.

(i) It would seem at first sight as if something like a grasp of experience in its fluidity were unavoidable. For, we saw, innovation involves firstly an act of purification in which the mind dispenses with the guidance of the old concepts and elements, secondly a stage in which the mind submits itself to things in their undivided fluidity, until the possession by the dynamic schema is vouchsafed, and only thereafter a development into new fruitful images and thence to new conceptual orderings. How are we to describe the second stage, especially at the point at which it becomes the possession of the mind by the dynamic schema, except as an intuition of the naked, fluid, real?

For myself, I should hesitate. There is clearly a stage after the mind has worked relatively loose from the old organisation and has not yet attained a vision of the new one. But the dynamic schema can be interpreted as the foreshadowing of its development into images and concepts; and the brooding stage can be described as a stage in the search among alternative images and concepts. When you are looking at an ambiguous figure (as studied *e.g.* by experimental psychology) trying to see it in alternative ways, there is a stage at which you have freed yourself from the dominance of one particular interpretation, and have not yet succeeded in giving it a second; but it would hardly be illuminating to speak of this stage as an endeavour to seize the figure in its fluidity, in its naked reality. The significant stages are those of interpretation; and I should prefer to describe all that takes place in between, in terms of a search for an interpretation. The whole account of the discipline preparatory to invention, and the helps toward invention (59-66) can be interpreted in this way: the inventor in his search makes use of analogies, comparisons, transpositions from one field to another; and the significant remark that "C'est sur des cas particuliers qu'on invente" (64) suggests that new interpretations do not arise from the real in its nakedness, but from the real in its concreteness: that in short, while we free ourselves from the domination of the old elements and principles, we do not free ourselves from their presence, but rather use them as material for our transformations.

The first aspect of intuition, then, as a vision of reality in its fluidity, I should reject: an account of the dynamic schema can be given without it.

(ii) The second aspect of intuition, the intimate presence of the knower to the known, in the sense of a total identity, I should reject also. It is bound up with M. le Roy's general idealism, which seems to involve three main points. The first point is the whole thesis regarding the transformation of the given by innovating schematism. The second point results from M. le Roy's campaign against subjectivism, in which he shows the conscious subject, with the forms of reason, forms of intuition, sense organs, developed at any epoch, as itself a crystallisation from reality, produced in the same way by innovating schematism, and showing itself as prolonged in two

directions, the direction of the sub-conscious, and of supra-consciousness. The third point he seems to take as obvious, *viz.* that from the first the material with which we are dealing is in the form of images, which clearly are of the nature of experience.

These three points taken together would seem to make it impossible to accept any ultimate dualism of knower and reality, and to lead to a view of absolute being as identical with complete intuition. And combining this with the view of intuition as identity with the real *au delà du discours*, above *morcelage*, we have the final view of the true reality as *natura naturans* perpetually engendering with more fulness and adequacy (with a fulness and adequacy immanent in the process itself) new forms of *natura naturata*. And so in the work of invention on the human level we have a glimpse of the nature of being in its absoluteness, and can gradually rise to an intuition which is a participation in the wider Being in whom we live and move. Dynamic truth is thus a way and a life—in the ultimate the way and the life. The discipline of invention and the discipline of which the mystics speak are one and the same.

Now it seems to me that it is essential to get a theory of knowing which preserves the distinction between knower and known, and regards knowing as an endeavour to characterise the thing known from some point of view. Knowing is liable to error, and the knower is imperfect. I should regard the account of the part played by the knower in imposing patterns of organisation on the known simply as an account of the knowing of the field of reality of which he is a part. Such knowing I should take as influencing his behaviour, including his interactions with his environment, and in consequence influencing his whole development. The experience of the self, which crystallises out through a long process, does so as distinct from, and yet as forming one body with, the experience of the rest of the world which crystallises out in the same process; and it is by the aid of this distinction that the self does come to be experienced. When I "come to myself" it is to a self known in the same way as other objects are known. It may be true that myself as known is tinged with enjoyment in a way different from other objects; but if we remember how much theories can falsify, and in particular how easily they can produce a sense in ourselves of enjoying what is not really present in us, it is not easy to accept the view that our knowledge of ourselves, because it has this tinge, is more certain than our knowledge of other objects. We are always more than we know, often other than we take ourselves to be. I am not sure that either our enjoyment or our knowledge of ourselves can be described as an intimate identity of vision and being; but even if it could at the highest imaginable stage be so described, I should find it difficult to regard the description as a description of the ideal of all knowledge.

I should then not regard the account of the innovating dynamism of knowledge as necessarily leading to an idealist view of reality; nor should I regard the identity of knower and of known as the ideal

of knowledge, or as involving greater certainty than a characterising of the known by a knower distinct from it.

There is a sense in which knowledge (which always involves intuitive insight in the sense already described) gives a sense of intimacy, of union; especially between persons. But it is a union of a particular sort. It is not a oneness of numerical identity. Two distinct things taken together are "one" in a different sense from the sense in which each is one. And I should regard insight as producing one such kind of new unity. You and I may become "one" through mutual insight, but this does not make you numerically identical with me in the sense in which I am numerically identical with myself.

This is even more clear in the case of a field of knowledge such as that of physics, or even in the case of an artist striving to penetrate nature in his way. To make a field one's own; to be at home in it, to have a penetrating insight, gives a union of contemplator and thing contemplated; but this union is essentially a union of contemplation, and nothing is gained by trying to regard it as a union of numerical identity.

I have touched upon only some of the more fundamental aspects of M. le Roy's doctrine, but have said enough, I hope, to show its great value. The book is beautifully written, and the reader is continually delighted by the judiciously chosen phraseology.

L. J. RUSSELL.

Knowledge Belief and Opinion. By JOHN LAIRD, M.A. New York: The Century Co. (London: D. Appleton & Co.), 1930. Pp. xi + 515. 15s.

In this book Prof. Laird has attempted "a survey of the cogitative part of our nature", obviously a task of the greatest difficulty. It would, of course, be absurd to expect from him a full solution of the many problems that vex epistemologists, but he has touched on most of them and discusses them with so much learning that, as a reference book alone, the work is bound to be valuable. (The appendix, consisting of ten pages of suggestions for reading, should help in the same way.) But the book is not merely a collection of other people's opinions, for it contains many original views and reflections. I had best state immediately the point which, as it seems to me, Prof. Laird most wants to stress; at least, it is the one to which he constantly returns. He is anxious that we should face squarely the problems of opinion and probability, that we should not regard the realm of opinion as one so arbitrary, so uncertain and so illogical, as to be beyond the pale of the epistemologist's interest. Especially is this attitude absurd in view of the fact that

our certainties, if any exist, are very few, and that the conduct of our life is guided, for the most part, by opinions rather than by certain knowledge. But these opinions are not without their own examinable rational order. Probabilities are not wholly ungrounded. And if only because of their frequency in our experience they, surely, need to be considered just as carefully as our certainties. This is a matter well worth stressing. From the point of view of metaphysics, perhaps, the fact of knowing with certainty, if such a fact exists, is of greater interest and significance in trying to understand the human mind than that of opining. Yet the endeavour to describe our opinings as accurately and as systematically as possible, setting forward the principles they obey, is none the less worth while.

Prof. Laird's point, as I understand it, applies quite as well to beliefs as to opinions. But here we meet with one of the gravest difficulties of the book. It distinguishes between knowledge, belief and opinion. The distinction between knowledge and opinion is familiar and clear. In opining we are not sure. But the distinction between believing and knowing, on the one hand, and between it and opining, on the other, is more obscure. Belief differs from opining, it would seem, in that it carries with it an assurance which is complete. At the same time, Mr. Laird admits that some of our beliefs do not carry with them this wholly complete conviction (*cf.* p. 157). In that case, opinion somehow merges into belief. "The upper limit of opinion, in this sense, is belief (or something very near it)" (p. 167). But his usual view is that belief is assent with full assurance. The difficulty, then, is to distinguish it from knowing. Knowing is also characterised by this completeness of conviction or full assurance. It differs, however, in that the assurance of belief is merely "psychological" whilst that of knowledge results from evidence which is seen to be completely sufficient. Any assent, therefore, which is given with full assurance but is yet not completely evidenced and not proved is belief. This, if I am right, is what Mr. Laird really means by the term, though, if it be so, his use of the word is not always consistent. But is he then justified in this tripartite division of the cogitative side of our nature?

In the first place, there can be no doubt that there is a pre-reflective state, which we may term "taking for granted", Cook Wilson's "being under the impression that". Here we have assurance, but only because we have not taken the trouble to doubt. This state is admittedly not opining, nor is it knowing. It is something distinct from both. After I have reflected, however, I may say to myself: "So and so after all is exceedingly probable and I believe it to be true". Now my assurance, here, may be well-nigh complete, but it is not wholly complete, and so it is, I should say, quite fairly an instance of opining. Or, again, in like conditions, I may settle down to what seems to be a state of conviction about the matter, and am very rudely surprised if I find that what I believed to be true was not true. But in that case, I should say, I am still

either opining or have reverted to the earlier stage of taking things for granted. Thirdly, I may have a belief about which I *feel* very deeply. Then, however convinced I say I am, if there is a shadow of doubt in my mind—and the very violence of my statement may itself suggest the existence of doubt—I am still in a state of opining rather than of knowing. But, Prof. Laird will remind me, there are surely instances where we are completely certain, where no shadow of doubt remains, which yet are neither self-evident nor completely evidenced mediately, which, if you ask me to prove, I cannot prove. These are no instances of knowing; nor are they opinions. Are they not then a distinct class, which we can call “beliefs”?

To begin with, if such “believing” exists, it should be very carefully distinguished from “taking for granted”. But I am tempted to deny its existence and to answer that Prof. Laird uses the term “knowing” in this context in too restricted a fashion. Is it correct to confine it to the insight which comes as the consequence of logical evidence? I presume he means by evidence here deduction (for he admits that induction only gives probability), the only other case of knowledge being the apprehension of the self-evident. But, if so, when, for example, I say I know with absolute certainty that I now see a red patch I cannot prove this, nor can I find any logical evidence for it, nor, finally, is it self-evident. Yet this, I should claim, is an instance of knowing, and not of believing. I am not more sure that two and two are four than that I now see the red patch. If I really have the complete assurance Mr. Laird talks about, then, logic or no logic, that is the insight which we term knowledge, and there is no distinction between that sense of “belief” and knowledge. The distinction between “psychological” and “logical” assurance, I am suggesting, is ultimately unsound. If I really am convinced, I know. I sometimes come to know as the result of examining evidence logically and passing logically from a premiss or premisses to a conclusion. But I need not always come to knowledge in this way. That was not the way in which I came to know that I now see a red patch. (And the same is true of moral knowledge, if we grant that moral knowledge really exists.) May it not be thoroughly dogmatic to hold, as I think Mr. Laird does here, that I only *know* when I can either prove by logical deduction what I know or else show it to be self-evident? No discussion of this matter would be complete without a further discussion of error, from which, however, for reasons of space I must refrain. My task at present is to review Mr. Laird’s book, and belief for him is a complete conviction which, at least, may be true; and to this I answer that if it really is complete conviction it is knowledge, and is true. Mr. Laird may still hold that there is a complete conviction other than “taking for granted”—which is not really complete conviction—and other than knowing. But then it is a state of which I cannot find a single instance. Consequently, in whatever way the term “belief” be used in ordinary conversation, I should

prefer to identify it technically with opinion, though, it might be used to express only those opinions which have a high degree of probability, or, again, those which are backed by emotion and are, therefore, more lively than our ordinary opinions. It is, also, I think, confusing to talk of "believing" when we mean "taking for granted", that state of pre-reflective unquestioning assurance—though, of course, it is very necessary to recognise the existence of such a state. And finally, I do not think it wise to divide "the cogitative part of our nature" under the three heads, knowledge, belief and opinion, and to suppose that these three exhaust the whole of that cogitative part.

To give the reader some conception of the contents of the work, I may briefly summarise the argument. The work is divided into four books. The first sets forward the scope of the inquiry and discusses the whole problem in an introductory manner; the second expounds the nature of knowledge, of belief and of opinion; the third considers instances of "certainties", questioning each instance; whilst, finally, the fourth deals with presumption, faith and probability.

The first chapter is introductory. It shows what the author means by epistemology, how it is a critical as well as a descriptive enquiry. It is "the self-criticism of our cogitative faculties" (p. 4). The second is historical, dealing with Locke, Hume, and Kant. The third considers the place of epistemology in philosophy. We definitely need an epistemology; but there is no reason to believe that, because it is the self-criticism of the cogitative faculties and so has to do with what is peculiarly human, it has, therefore, an advantage over other enquiries. It is not even true that we know our own minds better and earlier than aught else. "There is no good reason why our minds *must* be better known than anything else" (p. 90).

At the beginning of the second book he turns to consider the nature of knowledge. Up to the present stage he has contented himself with some points made rather incidentally. He is quite definite that knowledge is characterised by a certainty based on sufficient evidence. He has also held that it is not "primary apprehension of any sort" (p. 11), but that it is, none the less, "inspective apprehension" (p. 81). We now expect a clear statement as to the character of knowledge. But Mr. Laird prefers a less direct method. He begins with Samuel Butler's view that knowledge is a state of satisfaction, of repose and security, so complete that wonder and even consciousness cease. Then follows a consideration of Dewey's instrumentalism, which enables him to draw his first conclusion that no account of knowledge is sound which neglects what he calls its "gnostic character", namely, that the knower, in knowing, knows that he knows. He then considers certain views of Mr. Bertrand Russell, Cook Wilson, and Prof. A. E. Taylor. Finally, we have a section on noëtic insight in relation to knowledge. He considers the view "inviting" that all knowledge, properly so called,

has its roots in noëtic insight (p. 124). A thoroughly intellectual insight is a fact of human experience, even though we may never be able to isolate it. In a very short conclusion Mr. Laird still does not make clear (to me, at any rate) what precisely he means by knowledge, but contents himself with the statement: "I hope that I have done something towards indicating the complexity, as well as the austere fascination, of the whole subject" (p. 128). The next chapter deals with belief, a matter which we have sufficiently considered. The views of James Mill and William James are discussed. Finally, Mr. Laird writes a short chapter on opinion. He uses the word in a wide sense to cover Newman's five states, profession, credence, opinion, presumption and speculation. He shows the limits of opinion. We cannot form an opinion of what, for lack of data, is meaningless to us or, again, of anything self-contradictory.

The third book, entitled *The Usual Certainties*, opens with a discussion of the term certainty itself, in which two important points are made at the outset. Firstly, I may be certain now without being infallible on all occasions. Secondly, if we speak of something as being universally certain all we mean is that a person who doubts it can be shown to be wrong. But are there any certainties in this sense? After examining some of Dr. Moore's opinions in this connection, the first instance of certainty, as usually supposed, is considered. If we take the Law of Identity it is beyond doubt that we know it with certainty. It is true in itself, and independent of whether you or I or a third person knows it. It is a universal truth, and Prof. Laird considers the difficulties that are connected with its universality. His own belief is that there *are* general facts, and that we do know them. He then considers the Laws of Non-Contradiction and Excluded Middle. Mr. Laird refuses to admit any distinct problem of negation. Negative facts do exist. It is a fact that this rose is not in the garden, and I can come to know this fact (pp. 214-215). After touching on some further possible Laws of Thought he passes, in his next chapter, to consider "Inferential Certainty". Here, it seems, we have a further instance of certainty, for even when premisses are false there still remains something of which we can be certain, namely, I suppose, the implication. Immediate inferences are fair and valid instances of inference. Mill's argument against the syllogism is restated and met. The principle of the syllogism had best be expressed, Mr. Laird thinks, in this form: "Any property that belongs to *everything* of a certain nature must belong to each *individual instance* of that nature" (p. 230). (I can hardly believe that this statement of the principle underlying Barbara will be generally accepted, for there is nothing to show that the word "everything" may not be interpreted in an enumerative sense and so the charge of *petitio principii* might easily be made.) The next chapter shows how even mathematical "certainties" can be doubted. For as long as mathematicians disagree as to the nature of number and of unity even propositions like one and one

are two may be untrue. (But are they so really? Surely, though we may find difficulty in expressing in terms other than themselves what we mean by unity and number, yet we know what unity and number are.) And in geometry there is the additional fact that it is dependent to some extent on our sense-experience. When, again, we turn to the ethical certainties, they of course, cease to exist if we adopt a "relativist" view of ethics. But for the "intuitionist" in Ethics there are still certainties. Prof. Laird considers three types of ethical intuitionism, the particular or perceptual, the general or dogmatic and, lastly, the formal or philosophic, and shows how each has its peculiar difficulties. As to sensitive certainty Mr. Laird, if I understand him correctly, believes that I know with certainty that I now am seeing red; but on the vexed question of the relation between mind and sensa he adopts—in a very hesitating manner, it is true—the view that some sensa are qualities possessed by physical things; "... personally I believe that by far the most plausible theory of these matters is the view that attempts to base our knowledge of the physical world upon the high probability that certain, at least, of our "sensa" may be authentic, unmodified selections from physical nature" (p. 289). As to memory, Prof. Laird holds that it is simply re-inspection, direct and immediate; but, because of its nature, evidenced certainty is impossible in its case. Likewise, as to "introspective certainty", he cannot admit that we have complete and certain knowledge of the Self. We only gain glimpses of what we infer to be a continuant. Still more uncertain is our knowledge of others, though some kind of knowledge of others seems to be necessary for our own intellectual development. Finally, our emotional certainties must count as evidence in the sphere of values. There is much in the detailed argument of this book that one would like to question. I will content myself, however, with one criticism. A final chapter might have been added gathering together the many strands of thought in the book and stating definitely what are and what are not certainties in our experience.

The fourth book opens with a very interesting discussion of probability. The views of De Morgan, Venn and Keynes are examined. Mr. Laird draws up his own conclusions in a list of seven points (394-396), too long to quote here, but well worthy of consideration. Underlying all probable reasoning, he continues, are certain presumptions or "categorical preconnections". They are not so much *a priori*; nor again are they part of the direct testimony of our senses. They vary from age to age and from people to people, and account for fundamental differences in outlook. The fashion of the day, the current of popular opinion, man's own reason, observation, experiment, our desire for a coherent and a systematic account of things, are all sources of such "preconnections". Mr. Laird gathers these preconnections together under four heads, continuity, stability, natural regularity and system (pp. 425-427). In the pen-

ultimate chapter he considers "Induction in relation to Belief and Probability". He shows that a strict and pure empiricism, which assumes nothing, is impossible. We must at least with Mill assume parallel cases in Nature; and, indeed, Mill assumed much more, though he would not admit it. Treating of repetition and induction, Prof. Laird considers repetition useful as helping to increase probability though admittedly, except in those rare instances where complete enumeration is possible, it cannot give certainty. Induction rests on principles, even though these be not completely certain. Finally, we have a chapter on "Faith". Here Mr. Laird admits the ambiguity of the term. He traces its history in Early Christian, Mediaeval and post-Reformation thought. Faith deals with the supersensible; but to suppose that this means that it deals with an order other than the present world would be to assume that this world is the merely sensible, certainly a false assumption to make. He further discusses the relations between faith and doubt (faith is perfectly consistent with some counter-evidence), deductive ratiocination, inductive evidence, intellectual insight and value.

I must apologise to Prof. Laird for the fragmentariness of this *résumé* of his argument. It does not reveal the wealth of discussion contained in these chapters. Obviously, a great deal of labour has gone into the book and no bald summary can bring this out. But he who reads the work diligently may sometimes wonder whether the task Prof. Laird set himself was not too difficult. In connection with most of the topics touched upon here so much uncertainty exists at present that, in order to avoid the appearance of dogmatism, Prof. Laird has been compelled to adopt indefinite and vague language. And in trying to cover the whole field, perhaps prematurely, he fails, it seems to me, to do complete justice to any one part of it. Nor, I imagine, can anyone else to-day hope to succeed in this immense task. Yet I must confess to a certain admiration for the boldness of conception which led Prof. Laird to take the whole of Epistemology in his stride, and I should not deny that the attempt was well worth making.

R. I. AARON.

The Zermatt Dialogues: constituting the outlines of a philosophy of Mysticism—mainly on problems of cosmic import. By DOUGLAS FAWCETT. Pp. xxviii, 541. London: Macmillan & Co., 1931. Price 21s. net.

THE general meaning of Imaginism, as understood by Mr. Fawcett, has been pretty fully expounded in his previous works—*The World as Imagination* (1916) and *Divine Imagining* (1921). But they seem to have failed to carry much conviction beyond a comparatively

limited circle. This may be partly due to the novelty of the point of view and to the lack of a detailed attempt to deal with objections that might be expected to occur to many readers. Hence he has been well advised in giving a more elaborate explanation of his view and in dealing explicitly with the chief difficulties that would naturally be felt. He is probably right in thinking that the best way to do this is to adopt the familiar method of Dialogue. The imaginary Dialogues here recorded, however, are not highly controversial. They are rather of the nature of friendly talks between a mystic, an Oxford don, a Professor of Physics, a pessimistic poet, and an explorer and fascist M.P. The mystic is called West; but he is obviously a slightly veiled representation of the author himself. The dialogues are supposed to take place in the High Alps, where Mr. Fawcett has for a considerable time resided; and he has thought it worth while to give pictures of some of the barren Alpine scenery. This serves to give vividness to the situation and to remind the reader that what we are concerned with in the present volume is the inanimate world of nature. A second volume is promised dealing with the problems of life.

There is not much in the actual views here expounded that is not to be found in *Divine Imagining*—which ought, I think, to be read before proceeding to the Dialogues; but in them the details are much more definitely stated, and the difficulties are much more fully discussed. There is also more criticism of other types of philosophy. The chief points that appear to me to call for comment are—(1) the exact sense in which Imagination is to be understood, (2) the interpretation of Consciring, (3) the relations of these ideas to modern science and philosophy and especially to such a Rationalism as that of Hegel, (4) their relation to the modern conception of Value and, in connection with that, the relation of the present work to its proposed sequel.

1. With regard to the exact sense in which Imagination is to be understood, it is to be noted first that Mr. Fawcett begins by recognising a very wide sense in which it may be regarded as underlying all the content of human consciousness. 'Imagining', he says (p. 78), 'is the sole power inclusive of all kinds of psychical variety. . . . We shall find that it feeds human perception and is presupposed by conception, judgment, reasoning, desire and will. Imagining is inherently "teleologic" or purposive; feelings, pleasurable and painful, colour its activity; "values" emerge during its creative history. Delimit and name psychical functions as you will, you will discover that each and all issue from it'. He quotes from Ribot the statement that 'underneath all the reasoning, inductions, deductions, calculations, demonstrations, methods and logical apparatus of every sort, there is something animating them that is not understood, that is the work of that complex operation, the constructive imagination'. In this wide sense, it seems to be almost equivalent to what Kant called 'the synthetic unity of apperception'.

But the 'Divine Imagining' with which Mr. Fawcett is mainly concerned is not merely synthetic, but creative; and it is in the attempt to interpret this that he makes use of the term 'consciring', which was already used in his previous work, but which is now more fully explained and discussed. The need for such a term is emphasised by the confusion that results from the use that many writers have made of the term 'feeling'. Feeling, as Ward pointed out, means primarily the experience that we get from the sense of touch, and has been extended to include affective experiences (pleasure and pain and complex emotions). Mr. Fawcett urges that it is very confusing to extend its meaning further, so as to cover the consciousness of self and various undifferentiated modes of human experience. He refers, in particular, to Bradley and Bosanquet in this connection. 'Bradley', he says (p. 171), 'offers us in *Appearance and Reality* an Absolute of fused contents. His ally, Bosanquet, is of the same way of thinking, stating, for instance, that "the connection of contents, I suppose, is the same thing as the unity of consciousness"'. By deft use of the words "feeling", "felt mass", "felt totality", "self-feeling", and so forth, these writers delude themselves and their readers into the belief that no problem as to the "unity of consciousness", remains to be solved.' He refers also to Stout in this connection.

2. It is to meet this difficulty that Mr. Fawcett has introduced the term 'consciring'; and a large part of his new book is occupied with the attempt to make its meaning and applications clear. This had been already done, to a very considerable extent, in the earlier book on *Divine Imagining*; but it is much more fully discussed in the present volume. The main contention is that consciousness in general, and creative consciousness in particular, has to be thought of as continuous rather than discrete. In this contention he is in harmony with a good deal of current speculation. Words beginning with 'co' are coming more and more into fashion. Those who attended the philosophical Congress in Cambridge at the beginning of last July must have been particularly struck with the use that was made of the term 'coherence'. The idea of Truth as coherence has been much emphasised; and Prof. H. J. Paton has made us familiar with a coherence theory of Goodness. Now Mr. Fawcett is introducing us, or rather has been for some time trying to introduce us, to a coherence theory of Creation.¹ It connects closely with the theory of emergent evolution, which has been so well expounded by Mr. Alexander, Mr. Lloyd Morgan and others. What Mr. Fawcett adds, if I understand him rightly, is that this temporal process of evolution is to be supposed to be timelessly present to the creative Intelligence.

¹ The word 'Concept', of course, carries a similar implication of a mode of comprehensive unity; and hence Mr. Fawcett's dislike of that term does not seem to be very well founded. This will be referred to later.

It is clear, I think, that this general view of creation can be applied, not only to the creation of the Universe, but to those more limited modes of creative activity that are displayed in imaginative art. A dramatic composition consists of a sequence of activities, often having but little apparent connection with one another, but all leading up to a definite conclusion. The author of the play constructs it point by point, and it is so presented also to those who read it or see it performed; but the author must be supposed to have had the whole more or less definitely before his mind; and one who reads it or otherwise apprehends it must also gain a certain vision of it as an interesting totality. To apprehend it thus is to *conscire* it; and it is such an apprehension that Mr. Fawcett ascribes to the Divine Imagining. It may involve Feeling; but it seems clear that it is very misleading to characterise it by this term alone or even predominantly.

3. Holding this view of creative *consciring*, Mr. Fawcett is naturally opposed to any philosophical systems that are predominantly analytical or dominated by isolated concepts; and he includes in his condemnation such a system as that of Hegel. I think it is true to say that in his previous writings he has shown comparatively little interest in German philosophy; but he appears to have recently been giving more attention to it. He has evidently been somewhat attracted by Fichte and even by Schopenhauer. Systems that lay stress on Will may naturally seem to have more affinity with Imaginism than those that emphasise Reason. But it is difficult to understand how anyone who seeks to attain to an intelligible view of Nature and Human Life can suppose that he can accomplish it without the exercise of Reason. William James and his pragmatic followers have much to answer for in this. It would obviously be impossible in such a review as this to make any adequate defence of the Hegelian system, especially as the present reviewer is by no means a whole-hearted adherent of it. But surely it is the chief glory of man that he is a rational animal. It is hard to see how imaginism or any other philosophical doctrine could be defended without reasoning about it. Indeed, Mr. Fawcett himself seems to reason out his case pretty well, stating his views consistently and meeting possible objections with considerable skill. So far as I can see, it is only the use of abstract concepts and formal processes of reasoning that he objects to. But surely he must be aware that the Logic of Hegel is largely—indeed, almost entirely—occupied with an elaborate attempt to show the unsatisfactoriness of such concepts. The only concept that he seems to have regarded as adequate for the interpretation of the Universe is that which comes at the end of the dialectical process—‘Spirit that is conscious of itself as Spirit’. This Spirit, to which the Logic leads, is characterised as ‘God before the creation of the world’; but I think it is true that Hegel did not sufficiently explain how the process of creation is to be supposed to take place. Mr. Fawcett’s suggestion is that Imagina-

tion is the spiritual power to which the process may be best ascribed ; and that the method by which this creative process may be supposed to work is that which is best characterised as conscurring. This is an addition to Hegel's discussion of concepts, but need not be regarded as in any way inconsistent with it. Rather, some such view seems to be necessary to complete the logical process, if it is to be interpreted in the way that is suggested. It is, of course, possible—perhaps even probable—that Hegel would not have accepted this addition. But at least his criticism of concepts seems to call for some such addition. McTaggart, as is well known, suggested a *Society of Spirits*—a view that involves many difficulties that cannot be here discussed.

I think Mr. Fawcett's error here (for surely it is an error) lies in identifying reason with Formal Logic. That is a method of reasoning, no doubt, and it has some value for the detection of fallacies ; but it is far from covering the whole range of rational procedure. There is Inductive Logic, as well as Deductive ; and there is the Dialectical Logic, which Hegel used so effectively, and which has also been used with considerable skill by Bradley and Bosanquet. Even Dr. Schiller, who has forcibly criticised some logical methods, does not appear altogether to despise Logic—even formal Logic—when it is used with due caution. But Coherence is probably the best word to use here. To think coherently is what is logically important. But to think coherently is not to create in any complete sense. For this it is necessary to imagine ; and to imagine coherently is to conspire.

Mr. Fawcett's chief difficulties about Logic seem to me to arise—as many difficulties do—from his failure to recognise the important distinction between Understanding and Reason. He thus fails to appreciate Hegel in pretty much the same way as Carlyle failed to appreciate Coleridge. When he thinks he is attacking Reason (surely a monstrous thing for a philosopher to do !), it is in reality only Understanding that he has in mind. The idea of Divine Imagining seems to me to be a rational conception, though it is certainly not a conception that appeals to the Understanding. It may be said to be mystical ; but, if so, it belongs to the mysticism of Reason, not to that of Fantasy. Otherwise it could hardly be discussed in long philosophical treatises. It is true that, in his earlier book, Mr. Fawcett stated that the Divine Imagining 'creates as the lark sings', and he repeats this in the present work. But evidently he is referring to the 'blithe spirit' of Shelley, which is said to 'deem' profound truths—'things more true and deep than we mortals dream'. Such truths may surely be held to be reasonable. It certainly seems to me that, when Mr. Fawcett thinks he is attacking Reason, it is only Understanding that he has in mind ; and, when he thinks he is attacking Concepts, he is in reality seeking to substitute rational Concepts for the Concepts of the Understanding—just as Hegel sought to do in his *Logic*. Causation, for instance, appears

to be a useful Concept. It has helped greatly to introduce a certain order into the treatment of the physical sciences. But, as Mr. Fawcett notes (p. 347), its limitations have recently been emphasised by Eddington and other scientific writers. When they do this, they are appealing from the narrower outlook of the Understanding to the wider one of Reason. There is nothing unreasonable in that; though I am not sure that the wider outlook has been fully explained as yet. Eddington's suggestion that there may be Free Will at lower levels of existence than the human, or even than the animal, does not seem very convincing. Mr. Fawcett's idea of Consciring seems to provide us with a more satisfactory substitute for physical causation. If it is accepted, it certainly does explain.

The following is one of the most definite statements bearing on the subject of Causation (p. 261). 'However you incline to solve the riddle of instinct, animal and human, don't make the mistake of trying to derive the higher from the lower. Nothing in the world is derived solely from "antecedents". A fundamental revision of the concept of causation on the lines of imagination is required. Every step of change includes a gift, a creatum which does not repeat any event in the past. It may include also the appearance of that which, up to this moment, has not been able to show in the world. Consequently it is needful to look on the earlier as heralding rather than accounting for the later; and, when this is done, the fallacy of derivation is exposed and creative evolution, the making of the world system within Divine Imagining, reigns in its stead.' This, as well as many of the other points that are brought forward in this connection, had already been urged in the book on *Divine Imagining*. But I believe it is now more likely to win acceptance among scientific thinkers.¹

Hegel should receive more credit than has commonly been given to him for his critical examination of Causation and other concepts. It is surely ludicrous to represent him as a defender of those concepts of the Understanding which have, until recently, been too uncritically used in scientific study. It must be admitted, however, that it is possible to interpret Hegel in different ways. There are, or have been, Hegelians of the Right and of the Left. It must be admitted also that in several parts of his system—notably in his *Philosophy of Nature* (in which it is well to remember that he admitted an element of contingency) his knowledge, from the point of view of modern science, was inadequate. Even Edward Caird (one of the best interpreters of Hegel) stated, in his general account of Hegel's Life and Philosophy, that 'the days of discipleship are past'. But the days of respect for the memory of great thinkers are never past.

¹ It should be remembered, however, that the conception of 'Final Causes' has long been recognised. What is new is only an increased emphasis on their importance.

4. The idea of Value, which has been so much used in recent philosophical writings, is another conception that is somewhat adversely criticised by Mr. Fawcett. He prefers to use the term Good, which he seems to regard, like the Editor of *MIND*, as incapable of definition (p. 276). But Good has Evil as its correlative; and some experiences are practically indifferent. Surely it is useful to have the idea of a scale of Values, within which the various levels of Good and Evil can be included. To define Value may be difficult; but at least its meaning can be made clear by connecting it with simple facts of conscious experience, such as Appreciation (which may be taken as the most rudimentary form of Valuation). Certainly the difficulties that are raised by Mr. Fawcett do not appear to be insuperable. And indeed, in a Note to p. 288, he seems to admit that it is possible to define the supreme 'Perfection'. It is to be understood as the thoroughly made world system. What approximates to this, or tends towards it, would presumably be good in a relative sense; and what tends away from it would be relatively evil. As it is with tendencies towards or away from such perfection that human life is largely concerned, there would seem to be a very real place for Valuation.

It is not surprising, however, that Values should not be very fully dealt with in the present volume, which is concerned, in a rather general way, with the interpretation of the cosmic system as a whole. As I have already noted, another volume is promised, in which the special problems of human and animal life are to be discussed. That volume, I should suppose, will be almost wholly concerned with Values. It is to be hoped that it will not be long delayed. In the meantime, we must be content with these rather inadequate references.

I may add here that the present volume contains very extensive references to the work of other writers, which are given at the end of each chapter. They are so numerous, however, that it would be a great help to many readers to have a general Index at the end. Perhaps this might be added at the end of the second series of Dialogues; but it would be better if it could be made for each volume separately. I am assuming that a new edition of the present volume will be called for before long.

I doubt whether there is any writer at the present time from whom so many fresh suggestions about the larger problems of Reality can be gleaned, or by whom these problems are discussed with so much clearness and originality and so much literary grace. But his discursiveness is sometimes a little tantalising; and his appreciations of other writers are somewhat limited. His book is certainly not one that, in Bacon's language, can be 'swallowed': it has to be 'chewed and digested'; and a certain amount of it, especially on the critical side, may have to be rejected. But altogether it is a great achievement.

J. S. MACKENZIE.

VII.—NEW BOOKS.

An Essay concerning the Understanding, Knowledge, Opinion, and Assent.
By JOHN LOCKE. Edited with an Introduction by BENJAMIN RAND.
Cambridge [Mass.]. Harvard University Press, 1931. Pp. lx + 307.
15s.

DR. RAND's latest publication is of great value to every one interested in the history of English philosophy. It enables us to reconstruct, with greater certainty than before, the story of the development of Locke's thought. His own account in the 'Epistle to the Reader' is well known: the gathering of five or six friends in his chamber; the discourse on a "subject very remote from this"; his proposal that we should first "examine our own abilities and see what *objects* our understandings were, or were not, fitted to deal with"; and the "hasty and undigested thoughts, on a subject I had never before considered, which I set down against our next meeting": all leading up to the publication of the *Essay* in 1690. But even the approximate date of this historic meeting was not quite certain. Lady Masham says it was in 1670-71; Lord King (the biographer of Locke and great-grandson of his cousin—but why does Dr. Rand call him "Lord Peter King"?) says that it was at Oxford and in 1670; Tyrrell, who was present, gives 1673 as the date; while Locke himself in a letter of December, 1686, speaks of it as five or six years ago. The date 1670-71 has been generally accepted, and all doubts are now set at rest by the publication (from the MS. in the possession of the Earl of Lovelace) of this draft *Essay*, in three places in the text of which there is a reference to the time at which it was written—"this present year 1671". Dr. Rand also reproduces in facsimile not only the first page of this draft with its title at the top of the page, but also two other titles on successive pages preceding the draft, viz., *Intellectus* 1671 *J. L.* and *De Intellectu humano* 1671 *An Essay*. Fraser (monograph on Locke, p. 35; edition of Locke's *Essay*, vol. i., p. xxvi.) quoted from Locke's Common-place Book two similar Latin titles, with the date 1671, but followed by a paragraph of text different from that of the draft *Essay*. He did not follow up Lord King's statement (*Life of Locke*, ed. of 1864, p. 33) that "a copy of the *Essay* exists with the date of 1671". This is the copy that has at last been printed.

Dr. Rand provides an introduction in which he gives a running commentary on the draft and refers to the way in which its doctrines were elaborated in the finished *Essay*. It is sufficient to refer to this introduction and to limit my own comments to some of the impressions which I have gathered in reading the draft. Its mere extent is remarkable, occupying, as printed, 307 pages of about 230 words—a small thing, no doubt, compared with the great bulk of the *Essay* of 1690, but still further removed from the single sheet of paper on which Locke at first expected to

set down his thoughts. It is without the later division into books and chapters. It is a continuous exposition, in numbered paragraphs, of almost all the main doctrines afterwards set forth in four books and sixty-seven chapters. Not only the doctrines but the arguments for them and the manner of their expression are commonly retained. Locke had got the words which satisfied him, and did not trouble to change them. This happens on one occasion, even when it is apt to produce misunderstanding. *Essay* I. iii. 15 begins "when I had written this, being informed that my Lord Herbert had, in his book *De Veritate*, assigned these innate principles"—which suggests that Locke had first become acquainted with Herbert's book in 1689 or shortly before. But the words are almost a *verbatim* repetition of the draft (§ 5), "Since the writing of this, being informed that my Lord Herbert had in his book *De Veritate* spoken something of those innate principles, I presently betook myself to him"—so that the acquaintance really dates from 1671.

The first paragraph of the draft is repeated almost verbatim as the first paragraph of the *Essay*, but the former concludes with a reflection which does not re-appear in the *Essay*. Both draft and *Essay* anticipate advantage from the enquiry "in directing our thoughts in the search of other things", but the draft alone proceeds to add: "making us content to sit down in a quiet ignorance of those things which upon examination we shall find to lie beyond the reach of our capacity, and not out of an affectation of universal knowledge raise questions and perplex ourselves and others with disputes about things to which our understandings are not suited, and of which we cannot frame in our minds any clear or distinct conceptions, or whereof (as it has perhaps too often happened) we have not any notions at all". The caution is, however, not forgotten, but re-stated with somewhat greater precision in the fourth paragraph of the *Essay*.

There was never any good reason to doubt that Locke's main interest was in the problems of the Fourth Book, and that they were never far from his thoughts. This view is supported by the method of the draft, in which certain topics appropriate to what afterwards became Book IV. are discussed along with questions belonging to Book II. We can almost see Locke going over his manuscript, separating the epistemological from the purely psychological enquiry, and reserving the former for treatment at the end of his work. Apart from this, the order remains much the same; nor, except in the much greater elaboration, is there any very essential change. The denial of innate principles or ideas, the assumption without question of mental faculties, the classification of ideas, the explanations of substance, causation, extension, duration, number, the treatment of words and of the degrees of knowledge remain without any fundamental change.

A few modifications may be noted. In the draft (§ 94) extension and cohesion of parts are said to be "two primary qualities or properties of body", and knowledge and a power of moving to be "two primary qualities of spirit". This corresponds with *Essay* II., xxiii., 17, 18, where cohesion and power of communicating motion by impulse, and thinking and will are called our "primary ideas" of body and spirit respectively. But the draft does not contain the distinction of primary and secondary qualities of body as it appeared in the *Essay* II., viii., 9, where the primary qualities are enumerated as solidity, extension, figure, and mobility. The statement in the draft (§ 48) that "the certainty of geometrical demonstration or knowledge is founded in and depends on arithmetic, or the comparing

of numbers" is notable in itself and is not repeated in the *Essay*. Fundamentally there is no difference of doctrine regarding essence between draft and *Essay*, but the former contains no reference to real essence. Again, the analysis of time and duration is, in the main, the same in both, but the draft does not say, as *Essay* II., xiv., 21 does, that "Duration, in itself, is to be considered as going on in one constant, equal, uniform course". Is it allowable to conjecture that this concession was inserted in order to find room for the Newtonian physics with which Locke may have been acquainted by 1689?

On the whole, the impression I have gathered is that in the draft there is no lack of emphasis on the empirical side of Locke's doctrine, and that the modifications of that doctrine in the *Essay* are commonly due to the need for further recognition of the intellectualist factors implicit in his view of knowledge and in his assumption of the mental faculties of comparing, etc. This difference between draft and *Essay* is brought out in the treatment of moral relations. In both, ethics is made to depend ultimately upon individual pleasure and pain, and a law which controls their distribution. The draft, however, contains a suggestion of a merely social theory of ethics. In § 157 he writes, "The general rule whereof [*i.e.*, of the distinction of virtue and vice], and the most constant that I can find, is, that those actions are esteemed virtuous which tend absolutely to the preservation of society; and those that dissolve the bonds of society are everywhere esteemed ill and vicious, which would necessarily fall out so were there no obligation or superior law at all besides that of society". Similar statements in the *Essay* (IV., xxviii., 10-12) are less precise. On the other hand, there is no trace in the draft of the later doctrine of the *Essay* (IV., iv., 7) that "moral knowledge is as capable of real certainty as mathematics"—unless it be regarded as implied in the assertion "that the law being known or supposed known by us, the relation of our actions to it, *i.e.*, the agreement or disagreement of anything we do, to that rule is as clearly known as any other relation".

W. R. SORLEY.

The Revelation of Deity. By J. E. TURNER, M.A., Ph.D. London: Allen & Unwin, 1931. Pp. 223. 8s. 6d. net.

It is not strictly necessary that the reader of this suggestive book should previously have studied Dr. Turner's *Personality and Reality* and *The Nature of Deity*; but a continuous thread of argument runs through the three volumes. He has not been deterred by critics of his earlier works from holding that the Universe is an ordered and self-determining Whole, and that mind is fundamentally different from matter; but he justly protests against being supposed to hold these positions as simple assumptions. Whether to say that such contentions have behind them "the entire force of Hegel's philosophy" is to give a sound reason for believing them true is another affair; but certainly they may be defended on other, as good or better, grounds.

In an impressive and closely-woven argument, Dr. Turner treats of the various ways whereby Deity can manifest itself so as to be comprehended by man, urging that these form an ascending series which exhibit ever fuller degrees of adequacy, the climax being found in the Incarnation. Thus one form of Divine self-revelation is to be found in "the indelible rational order of the Universe"; another is "the perfect automatism of

the physical realm"; a third is the ethical aspect of Reality. Here the term "ethical", we are reminded, is to be taken in the fullest and widest sense—it comprises "the noblest attitudes, and consequently the finest deeds, that humanity can ever attain". If this be true of human personality, it must also be true with regard to the Supreme Self or Deity. "Here, likewise, and inseparable from His indirect and partial self-revelations in the structure and beauty of the world, there must exist a more complete and immediate revelation which is most adequately described as 'ethical'" (p. 95). Dr. Turner frequently lays stress on the point that the mechanical automatism of the physical world is necessarily a very indirect revelation of Deity. To use the analogy of the artist and his work, where the work may actually conceal the man, the more intimate unveiling of Deity must come from the ethical character of Reality.

In pursuing his argument, Dr. Turner occasionally lays down principles which, stated without qualification, look as if they were going to make serious difficulty for his final conclusions. Thus he insists that the entire realm of moral experience is at the same time a realm of invariable and necessary causation. This cannot be the whole story if (to take one example) the experience of being forgiven by a friend is a real and not an illusory thing. In a moral universe there is of course a necessary connection between the cause and the effect, but this throws no light on the question whether there may not be causes which are new beginnings. Again, it is a hard saying that in committing crime the criminal is "just as keenly conscious of an absolute obligation as the saint and martyr". If the word "absolute" here is meant seriously, why do habitual burglars so often like to have it thought that they are "going straight"?

The moral situation of man is pictured as one of hopeless moral failure, accompanied by a persistent desire to compensate for the evil chargeable upon him. But the entire situation, it is pointed out, is profoundly changed if the nature of Deity is personal. Thus pain that looked meaningless may come to be laden with significance. In the last resort, "we are driven to conclude that in Deity, as being the perfect type of selfhood, the determination to effect this compensation on behalf of man, who himself is helpless to do so, must be equally inherent; while (still further) since Deity is supreme, His purpose must be successfully achieved" (p. 172). This leads up to a carefully reasoned assertion of the Incarnation; though it may be doubted whether Dr. Turner is well advised in declaring that the *historical* evidence is "amply sufficient" to justify the conclusion that Jesus "is both fully human and fully divine". There is general agreement that historical evidence yields no more than probability, lower or higher; certainty, which authentic religion needs, can only arise from the assured and personal experience that through this Person we are brought into fellowship with God, with whom He is one; and the faith this implies is something for which *purely* historical considerations will not account.

Some readers will not unnaturally ask whether the deeply Christian results of Dr. Turner's argument can really be fitted into a specifically Hegelian framework—at all events if Hegel be read in the general sense of Bosanquet. To me it seems clear enough that they cannot. In his preface Dr. Turner explicitly defines "the Universe" as "the whole of Being or of Existence", and the impression left on one reader at least is that the prosperity of his argument depends on an unconscious radical ambiguity—on the question whether the terms "the Universe" and "Deity", as he employs them, are or are not equivalent. If they are, as

probably they are in Bosanquet, then, since "the whole of Being" includes much moral evil (as no one has shown more powerfully than Dr. Turner), Deity cannot mean what Christianity means by God. If they are not, then a good deal of Dr. Turner's able argument will have to be modified.

H. R. MACKINTOSH.

Interpretation and Analysis. By JOHN WISDOM. Psyche Miniatures, General Series. Kegan Paul, 1931. Pp. 136. 2s. 6d.

In this book, which begins and ends abruptly, Mr. Wisdom begins by distinguishing two senses in which "definition" may be used, namely, interpretation and analysis. While the latter is of great philosophical importance any importance which the former has is derivative only. To the detriment of clear thinking in Philosophy, these two have often been confused. Mr. Wisdom is anxious to point out how this confusion arises. It is important to do this, but I doubt if Mr. Wisdom has succeeded. In spite of this confusion between analysis and interpretation, Mr. Wisdom believes that questions about usages of language may, and do, throw light on questions about philosophical analysis, hence the derivative importance of definition in the sense of interpretation.

Mr. Wisdom's evidence for this belief does not seem to me very strong. It consists of references to Dr. Broad's discussion of relative motion, to a dog who ran round a cow which rotated as the dog revolved, and to Prof. Moore's argument against a view that ethical predicates are completely analysable in psychological terms. It is difficult to see how either of the first two references illustrate how facts about the usage of language are relevant to philosophical analysis. The reference to Prof. Moore's argument, however, does seem to afford such an illustration. Prof. Moore argues that because A, when he asserts X is wrong, contradicts B, who asserts that it is not wrong, it cannot be the case that *wrong* can be analysed into *tends to cause disapproval in me*, since, if it could, A and B would not be contradicting one another.

From the point of view of anyone other than some one interested in Bentham it is, I think, to be regretted that, with one important exception, the rest of this small book is devoted to Bentham. Moreover, one wonders whether much help is really derived from studying Bentham's views about definition; as Mr. Wisdom says, Bentham failed to see whether words or things are defined, and what relations exist between words, things, and thoughts.

In Section 4 Mr. Wisdom gives a list of Bentham's ways of "making clear the meaning of words". Two of these seven ways are discussed at length, namely, *Description or Individuation*, and *Paraphrases and Fictions*. Mr. Wisdom's discussion of *Individuation* is a discussion of phrases of the form "the so and so". When such a phrase is used, Mr. Wisdom says, we may want one of three things, a translation, an analysis, or an *individuation*. It is the third of these upon which the discussion concentrates. To individuate means to identify. This is only possible when a description "fits into a previous body of knowledge of individuals". It is admitted that this phrase is vague. Mr. Wisdom believes his own views of proper names are more in agreement with Mr. W. E. Johnson than with Mr. Russell. This is because he thinks (1) they are not names in Mr. Wittgenstein's sense, and (2) though they may be used as definite descriptions, they often imply substantial identification. This discussion is summed up

by saying that a phrase of the form "the so and so" may be used with three different results, namely (1) personal identification, (2) identification by exclusive quality, and (3) identification by hearsay.

Mr. Wisdom opens his discussion of Bentham's *Paraphrases and Fictions* by considering "What the present school mean by logical constructions". The connection between logical constructions and incomplete symbols is very close, as Mr. Wisdom has shown in his article on this subject in the April number of *MIND*. Mr. Wisdom draws four conclusions which he restates in his article, namely, to say that tables are logical constructions is *not* to say (a) that they are fictions in the sense in which unicorns are, (b) that they are products of the imagination, (c) that they are hypothetical entities; while it *is* to say that *Tables are logical Constructions* is a verbal proposition. Two points call for comment: (1) it is not easy to see how (a) differs from (b), and (2) I have not been able to see why Mr. Wisdom believes that propositions asserting so and so is a logical construction are verbal propositions.

The rest of the book consists of a comparison of Bentham's fictitious entities and logical constructions. Mr. Wisdom gives a list of the things which Bentham says are not Fictions, and another of those which he says are. He then considers what conditions must be satisfied if something is a fiction in Bentham's sense, pointing out similarities with the conditions which must be satisfied if something is a logical construction. With admirable patience Mr. Wisdom carries his researches into Bentham until he is able to conclude by stating three relations between Bentham's fictions and logical constructions.

This small book is very interesting. I wish Mr. Wisdom had sometimes made his arguments easier to follow by a less abrupt style, and perhaps fewer quotations from Bentham. But the latter might have defeated one of the aims of the book which I expect is to stimulate interest in the first person who wrote about "Fictions".

E. M. WHETNALL.

Individualism, Old and New. By JOHN DEWEY. George Allen & Unwin, London, 1931. Pp. 160. 6s.

THIS book is a reprint of essays contributed to the New York *New Republic*, and exhibits Professor Dewey in his capacity of liberal critic of social and political institutions. The central thought running through all his discussions is that man must effect a spiritual readjustment to the machine, which dominates modern life. Hence the need for a new individualism, different from the old Ishmaelite individualism of the frontier. Professor Dewey takes the machine age, not as something to be bemoaned or merely acquiesced in, but as "a challenge to generate new conceptions of the ideal and the spiritual" (p. 140), and as setting "the problem of humanising industrial civilisation" (p. 131). As always, his discussions abound in shrewd hits and disconcerting bits of candour, which spare neither his own country nor his own (the professorial) caste; as e.g., in his comments on "the distinguishing trait of the American student body in our higher schools, a kind of intellectual immaturity" or "infantilism" (pp. 119, 120), his disclaimer of "an exaggerated opinion of the influence that is wielded by so-called 'intellectuals'—philosophers, critics, writers, and professional persons in general" (p. 129), and his judgment that "a

humanism which flees from science as an enemy denies the means by which a liberal humanism might become a reality" (p. 144). As examples of his shrewdness one may quote: "literary persons and academic thinkers are now, more than ever, effects, not causes" (p. 65), "we think and feel alike, but only for a month or a season" (p. 80), "our charity and philosophy are partly the manifestation of an uneasy conscience" (p. 84), "the machine took us unawares and unprepared" (p. 89), "revolt against the machine as the author of social evils usually has an æsthetic origin" (p. 91), "our presidential elections are upon the whole determined by fear" (p. 98), "doing always means the doing of something in particular" (p. 153). In spite, however, of his many and excellent qualifications, Professor Dewey declines to prophesy what the new individual will be like, for the reason that the future is always unpredictable, and that we must not assume "a fixed world and a static individual," and that "ideals take shape and gain a content as they operate in remaking conditions" (p. 157).

F. C. S. SCHILLER.

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VIII.—NOTES.

W. E. JOHNSON (1858-1931): AN IMPRESSION.

For the philosophical public in general, Johnson's reputation rests almost entirely upon his *Logic*. To some that work will seem to be the most important treatise on the subject which has appeared in this country since J. S. Mill's *System of Logic*. To others, it will be essentially the work of a transitional period, still accepting much of the classical logic, but combining it with much of the new ideas which found their fullest expression in English in *Principia Mathematica*. The more surprising developments of this new logic, as we find them in Mr. Wittgenstein and his disciples, took place only after Johnson's work was largely in print.

In any case the book was only the crown of a long life devoted to philosophy. For a whole generation his influence on thought in Cambridge had been immense; and even now, or so it seems to me, one would think of him primarily as a Socrates rather than as a Plato.

I myself knew Johnson at two different periods, separated by an interval of twelve years. In the first period, just before the war, I was an undergraduate; in the second period, which covers only two years, I had returned to Cambridge to lecture. It is clear, therefore, that what is here offered can be no more than a personal impression, which is bound to omit much which others who knew Johnson might expect to find set down.

In my first year as an undergraduate, he was lecturing on Psychology. I do not think his manner as a lecturer was happy; the tone seemed to me monotonous, and I do not remember enjoying the lectures. But at that time Psychology interested me very little, so I may not be a fair judge.

The notes which I took are still in my possession, and I have often had reason to regret that there are gaps in them. They reveal Johnson (which will surprise no one) as an extremely independent kind of psychologist. For him, the science is one of clear-cut concepts, each carefully defined before it is introduced; the psychology, one might almost say, of a logician. His method of exposition was synthetic rather than analytic; he would first define a concept and state a position, and then proceed to show that it agreed with the facts better than rival views.

It was in personal discussion, however, that one got the best from Johnson; and those who did not take private lessons from him missed a very great pleasure. If I may judge from my own experience, his coaching was unorthodox in method. It was in the autumn of 1911 that I first went to him for help in *Logic*. The first volume of *Principia Mathematica* had recently appeared, and practically every undergraduate reading *Moral Science* was an enthusiastic (one might almost say a fanatical) adherent to as much of its doctrines as he could understand. It was natural enough therefore that my own lessons with Johnson took the form

of violent discussions about points in the new logic, and of the alternative doctrines which he was working out. It is impossible to convey to those who never had personal acquaintance with it an exact idea of Johnson's manner in discussion. It was at the same time detached, slightly aggrieved and slightly scornful. Failure to understand or to accept his views met with a kind of weary tolerance. This of course was only the external impression which he gave; actually no one enjoyed a good stand-up fight more than he did. At times he was sarcastic, as in the remark (the only one of many which comes to my mind), "I don't know what *your* view is, but what *I* demand of metaphysics is that it should be true".

It would be hard to say, in the case of a mind so independent, what had been the chief influences on his thought. But there can be no doubt that he held throughout to some of Ward's doctrines; and he mentioned once that Ward had said to him "Johnson, you and Stout are my best pupils". In Logic, he had of course the highest opinion of the work of Russell and Whitehead; and also of Bradley's *Principles of Logic*, which he once remarked "was as good a book as *Appearance and Reality* was a bad one". On the other hand, he had a very low opinion of Bosanquet as a logician.

But it would give a false impression of the man to dwell much on the influence upon him of other thinkers; for he gave above all the impression of one steadily pursuing his own way, and of not caring very much whether his views became known or not, or whether anyone agreed with him. It was the pure intellectual desire to reach truth, rather than the desire to spread it or the hope of acquiring reputation, which seemed to drive him on. And this perhaps partly explains that reluctance to publish, which was in the end so fortunately overcome. There was scarcely any point in the whole range of philosophy, or indeed of many other subjects, on which he would not, when questioned, produce a clear-cut and usually highly independent opinion; but it is to be feared that a large part of the fruits of a life-time spent in reflection has perished with him.

In May 1927 he suffered a paralytic stroke, which for some time deprived him of speech. By the autumn, however, he had recovered, and resumed teaching, though he was unable to go out of doors. Somewhat to the surprise of his friends, his intellectual powers proved to have been in no way affected by his illness. One of his chief recreations during his last years was a game of chess, and several of his friends used to share out the week between them. His style of play was highly individual. He preferred the Black pieces (surely a taste unique among chess players); and he nearly always remained purely on the defensive, waiting for his opponent to attack. By the time the attack developed, he had usually got his pieces into an amazingly cramped position, and the opponent began to fancy that the game was won. But just at this point, Johnson would develop an astonishing resourcefulness and tenacity in defence, and as often as not completely wear down the attack and end by winning the game.

But it is not, of course, as engaged in this innocent diversion that one would wish to leave him; the final memory is of the man as he talked before or after the game. Seated in his arm-chair, a very frail figure with a large coloured shawl over his shoulders, Johnson in his physical weakness seemed only to have gained in dignity. He looked what he was, a man whose whole life had been devoted to thought, and whose intense mental energy came out all the more clearly as his bodily powers declined.

LOCKE AND BERKELEY.

Dr. Aaron's important article in the last number of *MIND*, entitled 'Locke and Berkeley's *Common-place Book*,' has drawn attention to the *Posthumous Works of Mr. John Locke*, published in 1706.

In partial support of his main argument, I venture to quote a passage which makes it certain that Berkeley valued the book, and had familiarised himself with it not later than the spring of 1707.

In his *De Ludo Algebraico* he writes "Vide inter Opera ejus Posthuma, pages 30, 31, 32, etc. Tractatus de Regimine Intellectus: opus exiguum quidem illud, & imperfectum, sed quod vastis & elaboratis aliorum voluminibus jure quisquam prætulerit."

This passage refers to Locke's first piece, but no doubt Berkeley knew the whole collection, including the 'Examination of P. Malebranche's Opinion,' which, in Dr. Aaron's view, converted Berkeley to immaterialism.

Berkeley must have been, at least, confirmed in his creed, by studying this conflict between two "materialists". Whether or not he learned immaterialism from that source is an interesting but, perhaps, still an open question.

A. A. LUCE.

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ERRATUM.

TO THE EDITOR OF "MIND".

DEAR SIR,

I have to apologize to the philosophical public for an error which has crept into some copies of the *Proceedings of the 7th International Congress of Philosophy*.

Attached to Prof. S. Alexander's name in the list of Members is the note "since deceased."

This is, of course, happily not so; and the note has been, I suppose, transposed by an error, for making or failing to correct which I am very much to blame, from the name of Dr. Wildon Carr.

I earnestly hope that no one of Prof. Alexander's many friends and admirers have believed the false tidings.

I am, Sir,

Yours sincerely,

G. RYLE (Editor of the *Proceedings*).

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